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IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IDA-H4600)

ON A GRANT

IN THE AMOUNT OF SDR3.4 MILLION

(US\$5 MILLION EQUIVALENT)

TO THE

REPUBLIC OF HAITI

FOR AN

EMERGENCY SCHOOL RECONSTRUCTION PROJECT

November 30, 2012

Human Development Department-Education Sector
Caribbean Country Management Unit-Haiti
Latin America and the Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective August 30, 2012)

Currency Unit = Haitian Gourdes (HTG)

HTG1.00 = US\$ 0.0238

US\$ 1.00 = 42.05

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

APG	Adaptable Program Grant
BND	<i>Bureau de Nutrition et de Developpement</i> (Office for Nutrition and Development)
CAE	Country Assistance Evaluation
CAS	Country Assistance Strategy
CCT	Conditional Cash Transfer
CDB	Caribbean Development Bank
CIDA	Canadian International Development Agency
CP	<i>Conseillers Pédagogiques</i> (Teaching Advisors)
DAA	Department of Administrative Affairs
DAEPP	MENFP's Department for Private Education and Partnership
DDEs	Direction Departemental d'Education (Regional Education Departments)
DGS	<i>Direction du Genie Scolaire</i> (Civil Works Unit)
DHS	Demographic and Health Survey 2005
DPCE	Planning Department
DPC	<i>Direction de la Protection Civile</i> (Directorate of Civil Protection)
DPS	<i>Direction de Projets Sociaux</i> (Directorate of I Social Projects)
EFA	Education for All
ERDMP	Emergency Recovery and Disaster Management Program
ESRP	Emergency School Reconstruction Program
FAES	<i>Fonds d'Assistance Economique et Sociale</i> (Fund for Social and Economic Assistance)
FGHI	Tropical Storm Fay and Hurricanes Gustav, Hanna and Ike
IDB	Inter-American Development Bank
ISN	Interim Strategy Note
LAC	Latin America and the Caribbean Region
MENFP	<i>Ministere de L'Education Nationale et de la Formation Professionnelle</i> (Ministry of Education)
MEF	Ministry of Economy and Finance
NAPSS	National Action Plan for Safe Schools
NDRMS	National Disaster Risk Management System
MPCE	Ministry of Planning and External Cooperation
PCU	Project Coordination Unit
PDNA	Post-Disaster Needs Assessment
PRSP	<i>Croissance et pour la Reduction de la Pauvrete-</i> (Poverty Reduction Strategy Paper)
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework

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HAITI
EMERGENCY SCHOOL RECONSTRUCTION PROJECT
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A. Basic Information			
Country:	Haiti	Project Name:	HT: Emergency School Reconstruction Project
Project ID:	P115261	L/C/TF Number(s):	IDA-H4600
ICR Date:	11/30/2012	ICR Type:	Core ICR
Lending Instrument:	ERL	Borrower:	MINISTRY OF ECONOMY AND FINANCE
Original Total Commitment:	XDR 3.40M	Disbursed Amount:	XDR 3.4M
Revised Amount:	XDR 3.40M		
Environmental Category: B			
Implementing Agencies: Ministry of Education, <i>Fonds d'Assistance Economique et Sociale</i>			
Cofinanciers and Other External Partners: None			

B. Key Dates				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	11/13/2008	Effectiveness:	06/25/2009	06/25/2009
Appraisal:	02/11/2009	Restructuring(s):		05/04/2011 12/14/2011
Approval:	03/05/2009	Mid-term Review:		
		Closing:	12/30/2011	05/31/2012

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes:	MS
Risk to Development Outcome:	High
Bank Performance:	MS
Borrower Performance:	MS

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)			
Bank	Ratings	Borrower	Ratings
Quality at Entry:	MS	Government:	S
Quality of Supervision:	MS	Implementing	MU

		Agency/Agencies:	
Overall Bank Performance:	MS	Overall Borrower Performance:	MS

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation Performance	Indicators	QAG Assessments (if any)	Rating
Potential Problem Project at any time (Yes/No):	Yes	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Moderately Satisfactory		

D. Sector and Theme Codes		
	Original	Actual
Sector Code (as % of total Bank financing)		
Other social services	5	5
Primary education	90	90
Public administration- Education	5	5
Theme Code (as % of total Bank financing)		
Education for all	65	65
Natural disaster management	35	35

E. Bank Staff		
Positions	At ICR	At Approval
Vice President:	HasanTuluy	Pamela Cox
Country Director:	Alexandre V. Abrantes (Special Envoy)	Yvonne Tsikata
Sector Manager:	Reema Nayar	Chingboon Lee
Project Team Leader:	Patrick Philippe Ramanantoanina	Michael Drabble/Peter Holland
ICR Team Leader:	Patrick Philippe Ramanantoanina	
ICR Primary Author:	Richard J. Carroll	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)

The objective of the Project is to assist the Republic of Haiti in restoring and improving access to basic education in selected destroyed and/or heavily damaged public primary schools of its territory.

Revised Project Development Objectives (as approved by original approving authority)

No revision

(a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Occupation rate of rebuilt schools will be maintained at 75% or above following completion of civil works as measured within 6 months of Project closing.			
Value (quantitative or Qualitative)	N/A	75%	75%	85%
Date achieved	02/17/2009	12/30/2011	05/31/2012	11/26/2012
Comments (incl. % achievement)	Target met At the 5/4/2011 restructuring, wording was changed only in terms of the time for indicator measurement, from “during the next school year following completion of civil works.”			

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Number of schools rebuilt or rehabilitated with satisfactory technical standards in 2011			
Value (quantitative or Qualitative)	N/A	15	11	11
Date achieved	02/17/2009	12/30/2010	05/31/2012	05/31/2012
Comments (incl. % achievement)	Target met. Target was revised downward at the 5/4/2011 restructuring because of cost increases and delays relating to January 2010 earthquake. Schools were built to MENFP and Ministry of Public Works standards including anti-cyclonic and anti-seismic norms.			
Indicator 2 :	Number of schools retrofitted as emergency temporary shelters—4 schools in 2011			
Value (quantitative)	N/A	5	4	4

or Qualitative)				
Date achieved	02/17/2009	12/30/2011	05/31/2012	05/31/2012
Comments (incl. % achievement)	Target met. Target revised at 5/4/2011 restructuring because of factors relating to 2010 earthquake.			
Indicator 3 :	Methods for safe school construction are adopted in 2011.			
Value (quantitative or Qualitative)	N/A	50% application of methods in new, donor-funded construction	Methods for safe school construction are adopted	Methods drafted and discussed at MENFP in 2011 and 2012
Date achieved	02/17/2009	12/30/2011	05/31/2012	05/31/2012
Comments (incl. % achievement)	Target partially met.			
Indicator 4 :	Development of training modules on measures to increase safety in all schools.			
Value (quantitative or Qualitative)	N/A	1 set of training materials disseminated in 2010 and 2011	7 modules	7 modules
Date achieved	02/17/2009	12/30/2011	05/31/2012	05/31/2012
Comments (incl. % achievement)	Target met. The 7 modules are: 1- Evaluating Vulnerability and Risk; 2- Anti-hurricane and anti-seismic norms; 3- Team work; 4- Project Management; 5- Social Accountability; 6-Role of School Facilities; and 7- Parent-Teacher Relationships			
Indicator 5 :	Increased awareness of vulnerabilities to disaster management and the mitigation measures for the education sector amongst the stakeholders.			
Value (quantitative or Qualitative)	N/A	Consultations and workshops	9-consultations 2-workshops	20 consultations 5 workshops
Date achieved	02/17/2009	12/30/2011	05/31/2012	05/31/2012
Comments (incl. % achievement)	Target exceeded. Specific target numbers were added at the 5/4/2011 restructuring.			
Indicator 6:	A NAPSS which will sustain the activities beyond the Project life, as it will function as a business plan of the GOH over the medium- to long-term			
Value (quantitative or Qualitative)	N/A	Plan endorsed by most stakeholders and major donors	Plan prepared, adopted and presented to donors in 2011	Plan drafted in 2011
Date achieved	02/17/2009	12/30/2009	05/31/2011	05/31/2012
Comments (incl. % achievement)	Target partially met as revised at 5/4/2011 restructuring. Draft NAPSS was prepared in 2011 and is being revised.			
Indicator 7:	Percentage of schools rebuilt for which prequalification visits were conducted.			
Value	N/A	100%	100%	100%

(quantitative or Qualitative)				
Date achieved	02/17/2009	12/30/2011	05/31/2010	05/31/2012
Comments (incl. % achievement)	Target met.			
Indicator 8:	Number of general quality assurance supervision missions carried out by DGS for each school built			
Value (quantitative or Qualitative)	N/A	3 per school built (equivalent to 45 school visits).	2 per school built (equivalent to 22 school visits).	1 per school built (equivalent to 11 school visits)
Date achieved	02/17/2009	12/30/2011	05/31/2011	05/31/2012
Comments (incl. % achievement)	Target partially met. Architect retained at ICR stage to further assess quality of school construction.			
Indicator 9:	Number of DGS staff trained to become Master Trainers on NAPSS issues.			
Value (quantitative or Qualitative)	N/A	20	10	24
Date achieved	02/17/2009	12/30/2011	05/31/2011	05/31/2012
Comments (incl. % achievement)	Target exceeded. 24 DGS staff have received training in evaluating vulnerability and risk, anti-hurricane and anti-seismic construction and teamwork.			

G. Ratings of Project Performance in ISRs

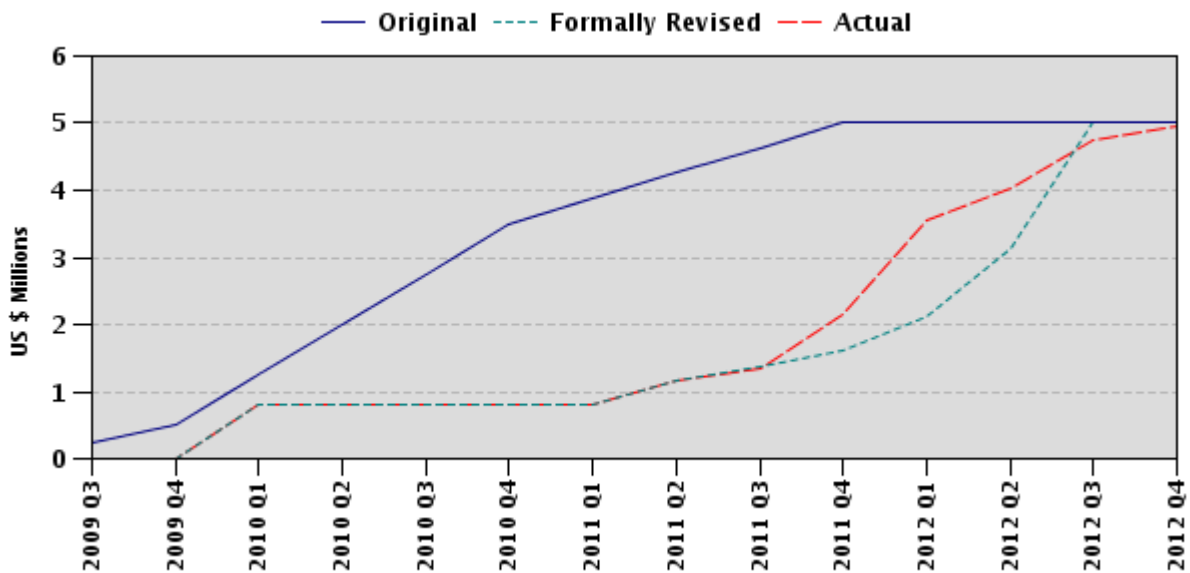
No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	04/30/2009	Satisfactory	Satisfactory	0.00
2	07/31/2009	Satisfactory	Satisfactory	0.00
3	12/13/2009	Satisfactory	Satisfactory	0.80
4	05/01/2010	Moderately Unsatisfactory	Moderately Unsatisfactory	0.80
5	02/23/2011	Moderately Unsatisfactory	Moderately Unsatisfactory	1.16
6	09/11/2011	Moderately Satisfactory	Moderately Unsatisfactory	3.54
7	05/16/2012	Moderately Satisfactory	Moderately Satisfactory	4.76

H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
5/4/2011	No	MU	MU	1.35	Revising most of the targets and

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
					dates in the results matrix because of the increase in unit costs caused by the increased demand for construction post-the January 2010 earthquake. The main change is the reduction of total number of schools rebuilt from 15 to 11.
12/14/2011	No	MS	MU	4.03	Extension of the closing date to May 31, 2012 because of disruptive rainy season of 2011, to resolve complications at construction sites, and to allow for completion of school construction.

I. Disbursement Profile



I. Project Context, Development Objectives and Design

1.1. Context at Appraisal

1. At the time of appraisal, prolonged political instability, weak economic growth, and intractable poverty resulted in Haiti's classification as a "fragile state". More than three quarters of Haitians were poor (living on less than US\$2 a day), and in the United Nations 2007/2008 Human Development Index, Haiti ranked 146th of 177 countries worldwide.

2. In August and September 2008, Haiti was struck by four successive storms and hurricanes: Tropical Storm Fay and Hurricanes Gustav, Hanna and Ike (FGHI), which severely damaged major public and social infrastructure and injured and killed hundreds of people. The Inter-American Development Bank (IDB) conducted a Post-Disaster Needs Assessment (PDNA) that estimated the overall impact of the FGHI on the socio-economic development of the country and developed a preliminary strategy for early-, medium- and long-term recovery and reconstruction. With respect to education, the PDNA estimated total damages and losses at nearly US\$30 million, with another US\$70 million in identified needs for the sector. According to official statistics, 964 schools were greatly damaged, affecting more than 200,000 children. These assessments underestimated the total damage, because the assessment focused on public sector infrastructure, which accounts for less than 20 percent of schools. Moreover, the education sector was already in poor shape from previous storms and neglect.

3. **Rationale for Bank involvement.** The Emergency School Reconstruction Project (ESRP) was prepared while there were two other ongoing, Bank-supported projects in the education sector: Education for All-EFA -Adaptable Program Grant-APG 1, and the Meeting Teacher Needs for EFA Project (*Formation Initiale Accelere-FIA*). The context at appraisal was that the APG-1 was providing demand-side support in the form of tuition subsidies and school nutrition, while the FIA Project provided the supply-side intervention of newly trained teachers. However, the education sector also had a dire need for schools. The timing of ESRP was to benefit from the increase in trained teachers from the FIA Project. The ESRP was also part of a package of new operations including the Emergency Bridge Reconstruction and Vulnerability Reduction Project (US\$20 million) to address emergency and short-term reconstruction needs. The ESRP responded to a direct request received from the Government of Haiti (GOH), specifically the Ministry of Education and Professional Development (MENFP) and the Ministry of Economy and Finance (MEF) to help with school reconstruction.

4. The Project's goal of restoring and improving access to schooling, was aligned with the Bank's Interim Strategy Note's focus on "quick wins", and fell within the core priority of strengthening human capital outlined in the country's Poverty Reduction Strategy Paper (*Document de Strategie Nationale pour la Croissance et pour la Reduction de la Pauvrete-DSNCRP*). The operation also was intended to strengthen the Bank's position as one of the Ministry of Education's main partners in the education sector.

1.2. Original Project Development Objectives (PDO) and Key Indicators

5. The PDO is "to assist the Government of Haiti in restoring and improving access to basic education in selected destroyed and/or heavily damaged public primary schools of its territory." The original and revised PDO indicators are found in Table 1.

Table 1: Key Indicators and Revisions

Original PAD Indicators	Restructured/Revised Indicators
Occupation rate of rebuilt schools will be maintained at 75% or above during the next school year following completion of civil works.	Occupation rate of rebuilt schools will be maintained at 75% or above following completion of civil works, as measured within six months of Project closing.

1.3. Revised PDO (as approved by original approving authority) and Key Indicators, and reasons/justification

6. There was no revision of the PDO. The PDO indicator was revised as shown in Table 1. The modification was not to the target, but only when it would be measured.

1.4. Main Beneficiaries

7. The main beneficiaries are primary school students who will attend a greatly improved school facility that provides more space per student and safer construction standards. With the reduction in the number of schools to be built (from 15 to 11) following the May 2011 restructuring, the number of beneficiaries was reduced from 4,500 to 3,300 students. This figure was based on an average school capacity of 300 students.

8. The *Direction du Genie Scolaire* (DGS), a unit of the MENFP, benefited from training for 24 staff to become master trainers, as well as the rehabilitation of its offices following the 2010 earthquake and the provision by the Project of equipment to facilitate its supervisory and regulatory role in the Project. Through raised awareness of school safety through consultations and workshops, and the National Action Plan for Safer Schools (NAPSS), teachers and students at the schools benefited from increased school safety. The construction of temporary shelters in rebuilt schools also benefited students and the surrounding community in four schools.

1.5. Original Components

Component 1: “Building back better” selected destroyed and/or heavily damaged public primary schools

9. The vast majority of the Project’s resources were to finance the reconstruction and rehabilitation of public primary schools under this component. The ESRP could respond to only a few of the worst situations identified through the PDNA. The schools were to be built using higher building standards than traditionally followed with the goal of building structures that could withstand natural disasters.

10. This component also aimed to add new facilities in some of the rebuilt public schools to be used as temporary emergency shelters for victims and evacuees during a natural disaster. In most cases, transforming a school to become an emergency shelter involved financing a combination of: (i) building an extra-large room attached to the existing school structure; (ii) upgrading and expanding the school latrines; and (iii) ensuring that schools have a secure access to drinkable water and/or energy source if possible.

Component 2: Reducing and mitigating the vulnerability of educational infrastructure

11. The main objective of this component was to put in place a nation-wide program that helps reduce major risks to and vulnerability of schools caused by natural disasters. To this end, the component aimed to support increased preparedness of key stakeholders in case of natural

disasters. Specifically, a NAPSS was to be developed, combined with reinforcement of the capacity of the DGS to properly enforce new norms and regulations relating to the construction and maintenance of educational infrastructure. The elaboration of the NAPSS was to include: (i) a vulnerability assessment and risk analysis of existing educational infrastructure; (ii) a study on “The impact of disasters on the education sector in Haiti”; (iii) the organization of a national workshop on building and maintaining safe schools; and (iv) the elaboration of the NAPSS implementation plan. The ESRP was also to support the development of a communications strategy and communication activities/tools aimed at disseminating the main lessons learned through the implementation of the Project. The goal was to ensure that the ESRP would have a strong demonstration effect on education stakeholders.

1.6. Revised Components

12. The components were not revised.

1.7. Other significant changes

13. The Project was restructured twice:

- **May 4, 2011**, which scaled down the number of schools from 15 to 11, because of a surge in demand for construction materials and services that increased construction costs. The increase in demand for construction materials was a result of the January 2010 earthquake, which subsequently led to rebuilding on a massive scale. Seismic norms were added to the construction standards for the schools. Some of the training targets were also scaled down. The schedule for approving the NAPSS was also pushed back. This restructuring, which did not change the PDO, was approved by the Special Envoy to Haiti.
- **December 14, 2011**, which was only to extend the closing date from December 30, 2011 to May 31 2012 to allow for completion of school construction. The need for the extension was based on delays due to the 2010 earthquake, a disruptive rainy season and complications at construction sites. This restructuring, which did not change the PDO, was approved by the Special Envoy to Haiti.

II. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

14. The urgent need for school reconstruction arose from the damage from FGHI. However, there had previously been a long period of neglect of school buildings. The ESRP school design strategy was to demonstrate the possibility of building good quality, safe schools that could withstand the natural disasters that are common in Haiti.

15. The ESRP was processed under emergency procedures to help the Government of Haiti (GOH) respond quickly and effectively to damage caused to the education sector infrastructure, and enhance preparedness for future natural emergencies. It aimed to restore access to schooling through the reconstruction of damaged schools. It also included activities to improve the capacity and methods for safe school construction (“building back better”), and to strengthen the institutional capacity of the MENFP to fulfill its supervisory and regulatory mandate. The Project also included activities to mitigate the vulnerability of school infrastructure through the development of the NAPSS, which would improve preparedness for natural disasters in the education sector. The ESRP was hoped to have a demonstration effect on the entire education

sector in Haiti and, in particular, on influencing practices and approaches in the construction sector.

16. The ESRP was designed also to reinforce DGS capacity, focusing on the DGS' role in terms of: (i) identification and selection of schools or schools sites; (ii) general quality assurance of construction and rehabilitation of educational infrastructure; (iii) completion of vulnerability assessments for existing schools; and (iv) involvement in reducing and mitigating the vulnerability of educational infrastructure. To that end, the DGS was to be supported with equipment (vehicles, motorcycles and office equipment/furniture) for the central level and the Education Departmental Delegations where the DGS has deployed staff. Training was also part of the capacity building activities to ensure that all the staff involved in these activities have the required skills and knowledge to carry out their duties effectively. The DGS was also supported with a budget to undertake requisite field missions focusing on prequalification and supervision activities. Selected DGS staff were to be trained as Master Trainers to disseminate the new methods for safe school construction, and therefore, participate in a training of trainers program. The Project aimed at a core group of trainers at the community level.

17. **Lessons learned and reflected in the Project design:** The Project design took into account lessons learned from previous operations in Haiti and from Bank-wide experience with emergency response and mitigation operations at the global level that helped minimize certain Project risks. The Project design incorporated lessons from Colombia in ensuring that the local Government, the MENFP and the community took leading roles in design and implementation, including school maintenance. The communities were not required to provide in-kind and/or cash support for the rebuilding of the heavily damaged or destroyed schools, but they were consulted and regularly informed during the reconstruction process for safer schools. The Project also benefited from building norms in schools in Madagascar, given that traditionally built facilities were found to collapse after cyclones. Good practices for building codes from El Salvador were incorporated.

18. To implement these lessons the Project design called for a five-step process: (i) pre-qualification of the schools; (ii) preparation of bidding documents (feasibility study) and contracting of construction firms; (iii) community mobilization; (iv) general supervision of civil works; and (v) final delivery of rebuilt schools. Building safer and more resilient schools implied higher costs than for standard schools of lesser quality. However, the choice for ESRP was to promote a safer and more resilient model of schools, including access to latrines and potable water.

19. The cost of construction in Haiti is high by regional standards. At appraisal the complete reconstruction of a six-classroom primary school with latrines, water well, surrounding wall and equipment was estimated to cost between US\$200,000 and US\$250,000, including the 10 percent fee paid to the contract management agency (the *Fonds d'Assistance Economique et Sociale*—Fund for Social and Economic Assistance—FAES). The additional civil works equipping schools as emergency shelters was expected to add between 15 and 25 percent to the US\$200,000 low-end Project unit cost or equivalent to between US\$30,000-US\$50,000 per school. The roles and responsibilities for the implementation of this sub-component were shared between the FAES (in charge of civil works) and the DGS, which was responsible for general quality control assurance through supervision and certification of civil works. The Bank also emphasized the importance of funding maintenance for the new schools (PAD Annex 9), and suggested the use of debt relief resources as a source of funding.

2.2 Implementation

20. The devastating earthquake that occurred on January 10, 2010, less than seven months after the ESRP became effective, left more than 200,000 people, 5 percent of the population, dead. There was widespread destruction of infrastructure, schools and government buildings, including the MENFP. Implementation of the APG-1 was halted for several months. The costs of construction of the schools were driven up substantially because of the soaring demand for construction materials and labor. The DGS offices were badly damaged by the earthquake and therefore had to be temporarily relocated to a borrowed space for several months. The unit cost of school construction increased to a range of US\$300,000-350,000, an increase of 40 to 50 percent. It was in this context that the Project was implemented.

21. The DGS worked with the MENFP's Department for Private Education and Partnership (DAEEP), and selected the schools, using specific eligibility criteria and geographic targeting following consultations with the beneficiary communities. As part of the prequalification process for the selection of schools, the DGS was responsible for: (i) collecting information related to the number of children regularly attending the schools that would be rebuilt; and (ii) assessing the potential unmet demand for education. The DGS worked with colleagues from the Planning Education Division and staff in DDE. Through pre-qualification of schools, the schools were dimensioned, taking into account the existing and expected needs of the community. The DGS met with the school director and staff, the school-parent community and the local authorities. DGS staff worked with MENFP staff at the local level including inspectors and the district education office staff.

22. Actual school construction was carried out by local firms recruited by the FAES, who also recruited supervision firms to oversee the construction works. These firms completed construction of all 11 schools by April 2012, well in time for the 2012/13 school year, which began in October 2012. Confirmation of school construction was done at three levels: (i) one supervision visit by DGS; (ii) site visits to several schools during the ICR fieldwork; and (iii) an assessment by an independent architect. These site visits confirmed that the schools were mostly completed and were of a much higher standard than other school construction in nearby communities. Given the post-earthquake devastation, it was an impressive feat for FAES to be able to deliver 11 new schools with only a modest delay. A large reason why FAES could meet the school construction target is because FAES was simply fortunate that its construction capacity was not destroyed in the earthquake. The Project was fortunate that FAES was the entity managing the construction firms and activities and not the MENFP itself, which had suffered major damage.

23. Because of construction cost increases and limited resources, FAES also had to cancel some nonessential design elements, such as fences in some schools and flush toilets in others. According to the post-completion architect's report, FAES was able to reinstate the canceled elements as additional works in a number of cases. These reinstated elements were financed by the Project itself (with the gains as a result of the fluctuation of the exchange rates) and by the FAES's own funds.

24. The independent architect's review of construction quality and durability was requested by the ICR team in order to have a comprehensive evaluation of the school construction. This architectural review found that while the schools were, for the most part, built to satisfactory

technical standards, there were a number of minor and major flaws in the design and the construction of the schools. For example the cable that secures school roofs was not properly positioned. Moreover, the cable was iron rather than steel with a higher susceptibility to corrosion. Water runoff channels could also have been better designed in some cases. Part of the reason for these flaws is the weak quality review from DGS. The ICR field mission also discovered that there was not any specific provision for maintaining the schools. FAES and school administrators referred rather vaguely to ad hoc efforts by the community to monitor the condition of the school buildings. However, there was no budget for either cosmetic (painting, grounds keeping) or structural upkeep of the new schools. The Bank is discussing with FAES how to address these issues, including a review of the architect's report. It has been confirmed that all 11 schools are in operation for the 2012/2013 school year.

25. To ensure stakeholder participation in the development of the NAPSS, a multi-stakeholder Task Force was created to steer NAPSS elaboration. The Task Force included officials from the MENFP, the Ministry of Public Works, the Ministry of Interior, NGOs and education private sector representatives, among others. It contributed to rich discussions and a holistic approach to NAPSS elaboration, as reflected in the preliminary version of the NAPSS, which was validated by this Task Force. Using training and assessment tools created by the Project, the DGS conducted vulnerability assessments of 158 schools in the two departments targeted by the Project (*Sud-Est* and *Nippes*). These activities provided data contributing to the elaboration of the NAPSS. A national workshop, along with many other smaller workshops and consultations, was also conducted to collect feedback on the vulnerability assessment and on the preliminary draft of a study titled, "The impact of disasters on the education sector in Haiti," as well as part of the elaboration of the NAPSS. This workshop was useful in filling information gaps in the study and contributed to the validation of its findings.

26. The NAPSS has been presented to donors, but is still under revision. The NAPSS process has lagged in part because of weak ownership by the MENFP. This weak ownership may also undermine the potential demonstration effect of the newly built schools in terms of demonstrating construction norms for other schools to be built in the coming years, which will feed into the NAPSS process. The NAPSS's main elements are: (i) prioritization of the needs for new school buildings, based on basic norms of construction which reflect international standards and respond to the findings of the vulnerability assessment and study; (ii) addressing the issue of retro-fitting of existing school buildings; (iii) protection and safety of the nonstructural components of the schools such as equipment and pedagogical materials; (iv) national guidelines for emergency planning at the school level; (v) guidelines for capacity building of education professionals to promote a culture of safety in schools; and (vi) clear and succinct guidelines to ensure effective implementation of each of these.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

27. **Design.** An M&E framework with specific targets was developed and the indicators were relevant to the PDO of restoring access to selected primary schools. The M&E function was used to determine the number of school-children expected to enroll, which determined the size of the school to be rebuilt. A potential occupancy was established for each school. If a given school is built to accommodate 300 children at six grade levels, and the 300 school-children were enrolled in the beginning of the school year, its occupation rate was 100 percent. Measuring the occupation rate is critical for assessing the achievement of the Project's

development objective. One shortcoming with the PDO indicator is that it is measured with one overall target for all the schools, which does not allow it fully capture individual school occupation rates. The intermediate indicators tracked that schools and emergency shelters were built to satisfactory technical standards. Additional evidence of improved access was produced at the ICR stage. The PAD stated that these standards and norms were to be developed through a consultative process, which they were for both the MENFP (with respect to schools) and the Ministry of Public Works (with respect to construction standards for all government buildings).

28. **Implementation.** The schools were completely built only near the end of the 2011/12 school year, and so occupation rates could not be measured during Project implementation. With respect to school construction-related intermediate indicators, progress was monitored through regular reports transmitted from FAES field offices to the central office, and with respect to NAPSS-related indicators, through NAPSS Task Force meeting minutes and reports from the FAES central office. It was important to compare the schools built against technical standards. After the earthquake, anti-seismic norms were added to the anti-hurricane norms in the architectural plans at the request of MENFP as part of the May 2011 Project restructuring, which the Project monitored. Other indicators captured the quality of the school site selection, which was adequate and the quality of supervision, which was weak.

29. **Utilization.** M&E data on school construction costs were used to determine the revised number of total schools to be built. Also, based on M&E tracking, intermediate Project indicators were revised downward during restructuring. Intermediate indicators were also used to track the progress of the NAPSS process and the adoption of school safety standards.

2.4 Safeguard and Fiduciary Compliance

30. ESRP was rated as an environmental category B project. The pre-screening of projects for this emergency operation indicated that OP 4.01 (Environmental Assessment) and OP 4.12 (Involuntary Resettlement) would be triggered and an Environmental Assessment and Management Framework (EMF) was developed and disclosed and used during construction. Environmental impacts under the proposed Project were relatively minor and were localized because most construction was on existing sites to replace damaged buildings. There were no involuntary resettlements.

31. The Project disbursed slowly, initially, because of earthquake-related delays with school construction, which accounted for 90 percent of the Grant proceeds. Still, there was no issue in terms of compliance of FAES with the Bank financial management procedures, nor was there an outstanding audit during the Project. The procurement plan was approved by the Bank. While the earthquake caused construction delays and necessitated a project extension, there were no delays and/or issues related to procurement matters.

2.5 Post-completion Operation/Next Phase

32. School construction is continuing with assistance from other donors including the IDB. Support to the NAPSS process and other institutional strengthening is continuing under the Bank-funded Project on Risk and Disaster Management (P126346). Other donors are also contributing to the NAPSS. For example, the *Direction du Développement et de la Coopération* (DDC—Swiss Aid) is working with the GOH on school designs incorporating anti-seismic and anti-cyclonic safety features.

III. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

Rating: High

33. **Objectives.** The objective of restoring and improving access to basic education remains highly relevant as Haiti continues to rebuild schools that were damaged in hurricanes and the 2010 earthquake. There is still a massive deficit of functioning schools. With its limited resources, the ESRP was able to rebuild only 11 of the 964 schools that needed repair to be usable or needed to be rebuilt entirely. Similarly, other donors have funded only a small fraction of the needed schools, so projects that include new schools continue to be highly relevant. The rebuilding of schools is also part of the national education strategy's priority to achieve universal primary education (Government of Haiti - The Operational Plan for Education 2010-2015 and the Declaration of General Policy of the Prime Minister—May 2012 (*Enoncé de Politique Générale du Premier Ministre*)). The President personally inaugurated the school rebuilt with Project funding at Anse-a-Veau. The NAPSS is also highly relevant going forward and supports the most recent (through calendar 2012) World Bank Interim Strategy Note (ISN) FY2012-2013 emphasis on improved governance in the public sector. The Project was doing more than simply replacing schools that had been destroyed; it was “building back better.”

34. **Design.** The Project design was adapted to reach its stated objective in a low capacity context, and included reliance on existing agencies to provide supervision and quality control, which contributed to relevance. Reinforcement of DGS capacity also remains relevant, as it continues to struggle with issues such as adequate supervision of existing schools and those under construction. However, the DGS's role in ensuring quality of construction needs to be better defined. The approach to developing the NAPSS is relevant from the standpoint of stakeholder participation and buy-in through consultations and workshops, as a national-level safer school strategy has never been established in Haiti. The design to improve safety standards and construction norms still needs work but is substantially relevant. The NAPSS will need continued support from donors to maximize its value as a national strategy for school construction.

35. One possible critique of the relevance of the approach to school construction is that the choice of expensive, high durability construction means that fewer schools could be built with available funds. However, the Project carefully reviewed lessons of experience with other projects in the region (Section 2.1), and concluded that it was more effective to build to a standard that would not have to be rebuilt given the vulnerability of Haiti to natural disasters. The higher standards favored by the more costly approach were relevant to improved safety because the schools could better withstand harsh weather and earthquakes, which continues to be relevant as Haiti works to update its construction norms and upgrade its portfolio of schools. This relevance is enhanced by the likelihood that, because of climate change, weather will continue to become more severe.

36. **Implementation.** Overall, the relevance of implementation was substantial as evidenced by the fact that FAES was able to construct the schools in an emergency environment (FGHI) that was compounded by the January 2010 earthquake. Given the level of devastation, it is conceivable that construction capacity in the country would have been diverted to other priorities. However, that did not happen. The May 2011 restructuring kept the Project's scope relevant by scaling down the number of schools from 15 to 11. In addition, the Project adapted

to changing needs by including an explicit focus on anti-seismic considerations post-earthquake, and by directing resources to the rehabilitation of the DGS offices in order to restore and improve their physical operational capacity.

37. Implementation would have been enhanced by stronger technical support, perhaps working in tandem with DGS personnel. For example, school quality would have benefited by a more reliable provision of quality control at the school design and construction stages as many flaws, both significant and minor, were discovered after completion of construction.

3.2 Achievement of Project Development Objectives

Ratings: Substantial

PDO: To assist the Government of Haiti in restoring and improving access to basic education in selected destroyed and/or heavily damaged public primary schools of its territory

38. This PDO has two parts, restoring access and improving access, which are assessed to be fully and partially achieved, respectively. The PDO aimed to achieve these improvements in schools most heavily affected by FGHI. The pre-qualification visits to selected new school sites by DGS ensured that the pre-existing schools at the sites had been severely damaged (at least 50 percent of the classrooms) or destroyed. The benefits of the ESRP are the restored access and improved access (safety and resilience of construction) from 11 new primary schools, which serve approximately 3,300 primary students who live in areas where the schools had been destroyed or heavily damaged.

39. The PDO indicator is that rebuilt schools are maintained at 75 percent student occupancy within six months of Project closing. With a 75 percent occupancy ratio, the restoration of access to basic education is achieved because students are able to attend school when they otherwise would not be able to because their school had been destroyed. The overall occupancy rate reported by the PCU in November 2012 was 85 percent, thus exceeding the target rate overall, which is evidence that the objective of restoration of access to basic education was achieved. The main intermediate indicator, as revised, of 11 new primary schools built to satisfactory technical standards was partially achieved. This indicator captures both restoring access and improving access.

40. Evidence of improved access is that the schools were built to satisfactory technical standards of both the MENFP/FAES and the Ministry of Public Works, and that these technical standards ensure safer schools by applying anti-seismic and anti-hurricane norms. Thus, the longevity of schools is extended and the likelihood of interruption of school attendance from weather and seismic damage to schools is reduced compared with traditional school construction. The revised target of 4 schools retrofitted as temporary emergency shelters was also achieved. In addition, during the hurricanes of September and October, a number of families used the emergency shelters.

41. The independent architect's report provided additional evidence of safety and sustainability of school construction but also exposed a number of issues that will need to be addressed (Annex 10). Evidence of school quality (improved access) that became available during the ICR stage was that the 11 schools were tested by two hurricanes that went through Haiti in September and October 2012, and sustained minor or no damage. Because of the design and construction flaws, the PDO of improved access is considered partially achieved.

42. Other intermediate indicators show progress regarding natural disaster awareness and preparedness in schools: (i) Training modules were developed to increase school safety at the local and national levels; (ii) Public awareness of vulnerabilities relating to disaster management was raised through workshops and consultations, which exceeded the number planned; and (iii) 24 DGS staff were trained on NAPSS issues, placing DGS in a position to assist other GOH offices improve vulnerability to natural disasters. These activities all contribute to the improved access outcome because they help ensure that students are safer while in school.

43. Several other measures relating to reduction of school vulnerability and disaster preparedness made progress, which contributed to the achievement of the PDO: (i) methods for safe school construction were drafted and discussed, and although they were not adopted during the life of the Project, they contributed to a better appreciation for improved preparedness in schools in the face of extreme natural events; (ii) a preliminary version of the NAPSS was prepared, and while it is still under revision, it elevated dialogue on safer school construction and disaster preparedness, as evidenced by the workshops and consultations on the NAPSS and the completion of four emergency shelters; and (iii) DGS carried out one quality assurance visit during school construction, which supplemented the independent architect's report and provided additional confirmation of the construction of the selected schools.

3.3 Efficiency

Rating: Modest

44. No formal economic and financial analysis was carried out for the preparation of ESRP. However, decisions regarding the trade-off between quality and cost were important to efficiency. The efficiency assessment is affected by the trade-off between quality and safety of school construction on the one hand, and affordability on the other. The frequency of weather-related events such as hurricanes that occur in the Caribbean region each year supports the higher quality side of the trade-off. Thus, schools in Haiti will be more expensive to build than in other countries that do not have to deal with these same environmental risks. After decades of traditional school construction that was not able to withstand the weather conditions in Haiti, the GOH has opted to build fewer, more durable schools rather than building more, less durable schools.

45. Because of the large number of schools that needed rehabilitating, it was decided that only the schools that had at least 50 percent of their classrooms destroyed and/or schools in serious risk of collapsing were to be eligible for support under the Project. Despite the national scope of the "build back better" Program, for quick success and possible economies of scale, the first group of schools to enter the Program was selected from two geographical Departments. Based on the estimated unit cost at appraisal, about US\$200,000-US\$250,000, the emergency Project was expected to finance the reconstruction of approximately 15 schools. As discussed, after the earthquake the number dropped to 11 schools because of the sharp increase in construction costs. With the increased unit cost of school construction rising to US\$300,000-US\$350,000, the unit cost per student is US\$1,000-US\$1,175 compared to US\$670-US\$833 expected at appraisal.

46. In terms of greater efficiency, better and more resistant educational infrastructure will contribute to lowering the cost of school maintenance. There will also be less down time because of unusable schools. In addition, the Project had to be extended only six months, which is a modest extension given the severe disruption caused by the January 2010 earthquake.

Despite these overall benefits, there were flaws in the design and construction of some of the schools documented in the independent architect's report that will need to be corrected at additional cost which has yet to be estimated by FAES. With the higher costs and the construction and design flaws, but tempered by only a five-month implementation delay, efficiency is rated as modest.

3.4 Justification of Overall Outcome Rating

Rating: Moderately Satisfactory

47. With the activities of the Project highly relevant, substantial achievement of the outcome indicator, but modest efficiency, the overall outcome rating is moderately satisfactory. The moderate shortcomings included the increase in costs of school construction (efficiency), and the design and construction flaws in the new schools which affected the level of improved access (efficacy).

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

48. All of the 11 schools are public schools and are located in poor rural areas, and, as such benefit poor primary students.

(b) Institutional Change/Strengthening

49. The ESRP helped strengthen institutions by improving the understanding of how disasters impact the education sector in Haiti and by assessing the disaster resilience of school buildings in targeted regions. In addition, the Project helped build capacity in schools and in the MENFP to improve safety in schools. Awareness of safety and disaster preparedness issues was raised across stakeholder groups including the MENFP (DGS), representatives of local Governments, parents, students and school administrators. Formal training in school safety was developed in the form of a training module and training material for developing technical skills.

50. FAES maintained its capacity to follow through on the design and management of the construction of the schools. Capacity was also built up in DGS. However, the independent architect report found that the construction and design flaws were because of weak preparation and supervision in both FAES and DGS. Thus, additional capacity building is needed. The NAPSS, which could potentially be one of the biggest institutional strengthening impacts of the Project is proceeding, but, again behind schedule.

(c) Other Unintended Outcomes and Impacts (positive or negative)

NA

3.6 3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

NA

IV. Assessment of Risk to Development Outcome

Rating: High

51. The schools are of much higher quality than the schools that were previously on site. Since the schools were built, Haiti has experienced two Category 1 hurricanes and there was no serious damage to any of the schools or emergency shelters, except due to poor design of run-off

in one of the schools (Anse aux Pins). Going forward, according to the architect's report, some design changes may be required, such as replacing the iron cable securing the school's roof with a steel cable, which affects one of the schools. Still, in the long-term, the "building back better" approach is expected to reduce the risks of damage to educational infrastructure.

52. Despite the higher quality construction of the new schools, they will still need maintenance and there is currently no maintenance plan or budget in place. Lack of maintenance could be a significant factor over time in realizing the full benefits from the schools. Mitigating this risk is the fact that with the GOH policy of universal compulsory primary education, schools will receive grants on a per capita basis. It is expected that that priority will be given to school maintenance. In any case, because of the high demand for education and the insufficient number of schools, occupancy of schools is expected to exceed 75 percent for the foreseeable future, even if inadequately maintained.

53. Regarding the NAPSS, there have been a number of consultations, assessments and studies, and there is a national strategy for school construction in draft. However, it needs to be expanded to include the technical specifications for new schools and the strategy for the assessment/certification of school infrastructure for school accreditation. Implementation of the NAPSS will be a long-term endeavor, which will require mobilization of human and financial resources and substantially improved ownership by the MENFP. The Bank, the IDB and the DDC are supporting the NAPSS. This implementation is in turn dependent on the capacity at DGS because the DGS will need to endorse and elaborate the NAPSS.

V. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

Rating: Moderately Satisfactory

54. The Bank responded quickly to the urgent need to rebuild schools in Haiti. It also worked with stakeholders to address the issue of safety and durability of schools and to manage the trade-off between affordability and quality. Applying experience from other countries was particularly useful in this regard. The Bank also raised the importance of school maintenance and proposed a mechanism to provide resources for that purpose. A moderate shortcoming with respect to the NAPSS, in retrospect, is that while the concept of the NAPSS is highly relevant to Haiti's needs, the Bank's expectations for completion of the NAPSS were overly optimistic. In the Haitian context, bringing different interest groups (contractors, government, communities) together can be a protracted process.

(b) Quality of Supervision

Rating: Moderately Satisfactory

55. The Bank helped the implementing agencies through intensive implementation support in the difficult aftermath of the January 2010 earthquake. The Bank recognized that unit costs of construction had risen substantially as a result and supported an appropriate restructuring that scaled down several targets for Project activities. The Bank was also supportive to the GOH in ensuring that the NAPSS moved forward despite delays that prohibited its completion under this Project.

56. There were several moderate shortcomings. The Bank could have performed better by providing stronger support to the GOH to establish a maintenance regime for the schools. Also, the Bank should have been more involved in reviewing school designs to avoid some of the issues raised in the architect's report.

(c) Justification of Rating for Overall Bank Performance

Rating: Moderately Satisfactory

57. With moderately satisfactory performance at entry and at supervision and an outcome rating of moderately satisfactory, the overall Bank performance is moderately satisfactory.

5.2 Borrower Performance

(a) Government Performance

Rating: Satisfactory

58. The GOH supported the overall Project design, and was flexible in dealing with implementation issues and helpful in Project restructurings. Administrative processes were flexible and adequate. There were no issues with the Ministry of Finance or significant shortcomings. The Project benefited from support at the highest level of government because of its commitment to universal primary education. The President also personally inaugurated several of the newly built schools.

(b) Implementing Agency or Agencies Performance

Rating: Moderately Unsatisfactory

59. FAES was able to deliver on the revised target of 11 new schools, and only five months behind schedule, which, given the post-earthquake context was an impressive achievement. The shortcoming was the significant quality issues in the construction of some of the schools.

60. The DGS (of MENFP) carried out its responsibilities with respect to the prequalification of schools and the assessment of the vulnerability of 158 existing schools to inform the NAPSS, but performed rather poorly in ensuring construction quality through site visits to the schools, which was a major shortcoming. This is one reason why the ICR team felt it was necessary to have an independent assessment of school construction, which uncovered many weaknesses in construction and design (Annex 10). DGS capacity has improved somewhat, but not to the level envisioned at appraisal.

61. With respect to NAPSS preparation, there was a significant shortcoming in that the MENFP had a difficult time in bringing stakeholders together in preparing the NAPSS, partly because of its own weak ownership of the process. Another significant shortcoming was that the draft of the NAPSS was somewhat below expectations and was not as comprehensive as described in the PAD. That said, the NAPSS has progressed despite significant challenges.

(c) Justification of Rating for Overall Borrower Performance

Rating: Moderately Satisfactory

62. With GOH performance rated satisfactory, implementing agency performance moderately unsatisfactory, and with the outcome rating at moderately satisfactory, the overall Borrower rating is moderately satisfactory.

VI. Lessons Learned

63. **In natural disaster-afflicted areas, it is important to build for quality even if it requires that fewer schools be built.** It is too expensive to have to rebuild schools after each extreme weather event and dangerous to teachers and students who could be injured or killed. If all schools are built to a standard that cannot withstand harsh weather and other natural disasters, then teachers and students are in jeopardy and the schools will have to be rebuilt in the short-run.

64. **Even though a country may be highly motivated to improve safety, efforts to adopt a safety strategy and standards may lag.** Although Haiti suffered from devastating natural disasters and fundamentally agreed on the need for greater safety in schools, it has still proven difficult to develop a comprehensive National Action Plan for Safer Schools. This difficulty can be traced to the fact that ownership and commitment from MENFP was lacking from the beginning.

65. **The Bank should consider becoming more involved in reviewing architectural designs, particularly in construction in fragile states.** Although implementing agencies had the capacity to build and supervise the building of schools, there needed to be a closer review of designs for schools. The Bank could make greater use of its skills and resources in reviewing and improving local designs.

66. **It is important that the implementing agency exhibit strong leadership in its sector if a project's demonstration effect is to be effective.** The MENFP did not maximize the opportunity for the demonstration effect of the construction of new schools. In particular, it was not clear to other stakeholders whether the Project was presenting a new model for construction of schools that would be financed by other donors, or whether the new schools were simply a demonstration of what could be built with local capacity.

VII. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

No comments received.

(a) Borrower/implementing agencies

(b) Cofinanciers

(c) Other partners and stakeholders

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Component 1: Rebuilding Schools	3.62	3.8	105%
Component 2: Reduce vulnerability of school infrastructure	0.48	0.4	83%
Project management (FAES Fee)	0.50	0.5	100%
PPF	0.40	0.4	100%
Total Baseline Cost	5.00	5.1	102%
Physical Contingencies	0.00	0.00	0.00
Price Contingencies	0.00	0.00	0.00
Total Project Costs	5.000	5.1	102%
Front-end fee PPF	0.00	0.00	.00
Front-end fee IBRD	0.00	0.00	.00
Total Financing Required	5.000	5.1	102% /a

/a Exceeded 100% because of exchange rate gains.

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower		0.00	0.00	
IDA Grant		5.000	5.1	102%

Annex 2. Outputs by Component

Indicators	Progress	Comments
1. Program results indicators		
<p>1.1 Initial: The occupancy rate of rebuilt schools will be maintained at at least 75% during the school year following completion of the civil engineering projects.</p> <p>Revised: The occupancy rate of rebuilt schools will be maintained at at least 75% following completion of the civil engineering projects, assessed during the six months following the end of the program.</p>	N/A	85% average occupancy rate- November 2012.
2. Interim results indicators		
<p>2.1 Number of schools rebuilt or rehabilitated that meet technical standards.</p> <p>Initial targets and dates: 7 schools rebuilt in 2009; 8 schools rebuilt in 2010.</p> <p>Revised targets and dates: 11 school rebuilt in 2011.</p>	<p>Eleven (11) schools were rebuilt or rehabilitated: six (6) in Nippes and five (5) in Sud-est.</p> <p>Nippes:</p> <p>Ecole Ntle de Saut du Baril Ecole Ntle de Anse aux Pins Ecole Ntle de Brody Ecole Ntle de Silègue Ecole Ntle Jean Marie Vincent des Barradères Ecole Ntle Mixte de l'Anse à Veau</p> <p>Sud-est:</p> <p>Ecole Ntle de Haut Coq Chante Ecole de Platon Cèdre Ecole Ntle de Grand Gosier Ecole Ntle des Amazones Ecole Ntle de Bigot</p>	Compliance with standards was partial. However, schools did withstand severe weather in September and October 2012 with only minor damage.
<p>2.2 Number of schools serving as a temporary emergency shelter.</p> <p>Initial targets and dates: Three (3) schools serving as a temporary emergency shelter in 2009; two (2) schools in 2010.</p> <p>Revised targets and dates: 4 schools serving as a temporary emergency shelter in 2011.</p>	<p>Four (4) schools: two (2) in Nippes and two (2) in Sud-est.</p> <p>Nippes: Ecoles Ntles de Brody and Anse à Veau.</p> <p>Sud-est: Ecoles Ntles de Grand Gosier and de Platon Cèdre.</p>	See above - same situation
<p>2.3 Increased awareness of education stakeholders of schools' vulnerability to disasters and of relief measures.</p> <p>Initial targets and dates: Workshops and consultations with stakeholders in 2009, 2010 and 2011.</p> <p>Revised targets and dates: 1 consultation in 2009; 1 workshop and 5 consultations (total) in 2010; 2 workshops and 9 consultations (total) in 2011.</p>	<p>A workshop in 2011 for education stakeholders (DGS managers) on assessing the vulnerability of education infrastructures.</p> <p>Training for community workers and school stakeholders on the following topics:</p> <ul style="list-style-type: none"> • Risk and disaster management • Social responsibility • Role of schools • Parent-teacher relations <p>Seven (7) meetings with the NAPSS</p>	.

	<p>task force:</p> <ul style="list-style-type: none"> • 1 meeting with education stakeholders • 1 meeting with education stakeholders involved in risk and disaster management • 1 meeting with financial backers in the education sector 	
<p>2.4 NAPSS to support activities beyond the scope of the program, as a medium- and long-term action plan for the GoH.</p> <p>Initial targets and dates: Draft NAPSS written and approved by most of the stakeholders and all main financial backers of current school construction programs in 2009; NAPSS gradually applied by financial backers to build schools in 2010 and 2011.</p> <p>Revised targets and dates: NAPSS is drafted, adopted and submitted to stakeholders in 2011.</p>	NAPSS technical document finalized in May 2012.	The document does not include the political framework for major decisions. The method for assessing school vulnerability does not include objective criteria. The final version of the NAPSS technical document is submitted to MENFP for finalization and approval.
<p>2.5 Percentage of schools rebuilt for which pre-qualification visits were done.</p> <p>Initial targets and dates: 100% in 2009; 100% in 2010.</p> <p>Revised targets and dates: 100% in 2009.</p>	100% in 2010	Pre-qualification visits were done systematically, by DGS and FAES.
<p>2.6 Number of general supervision missions (quality control) by DGS per school built.</p> <p>Initial targets and dates: 3 per school built and per year in 2009; 3 per school built and per year in 2010.</p> <p>Revised targets and dates: 0 per school built and per year in 2009; 0 per school built and per year in 2010; 2 per school built and per year in 2011 (equivalent to 22 school visits)</p>		According to staff members, the DGS carried out supervision missions (quality control) to each school built, but no report was submitted to FAES, despite requests.
<p>2.7 DGS staff members trained to become NAPSS trainers</p> <p>Initial targets and dates: 10 DGS managers trained to become trainers in 2009; 20 DGS managers (total) trained to become trainers in 2010.</p> <p>Revised targets and dates: 0 DGS managers trained to become trainers in 2009; 0 DGS managers trained to become trainers in 2010; 10 DGS managers trained to become trainers in 2011.</p>	<p>24 in 2010.</p> <p>The DGS team provided training on assessing schools' vulnerability.</p>	The number achieved is higher than that forecast.
<p>2.8 Safe school construction methods are adopted and gradually applied under the school construction program.</p> <p>Initial targets and dates: 25% of civil engineering projects financed by bilateral/multilateral financial backers apply the new safe school construction methods.</p> <p>Revised targets and dates: Safe school construction</p>		The new construction methods would be the cornerstone of its construction policy.

methods are adopted in 2011.		
<p>2.9 Development of training modules, teaching support, guides and other documents on measures to increase the safety of schools at the national and local levels.</p> <p>Initial targets and dates: All training materials developed in 2009; training materials disseminated in 2010 and 2011.</p> <p>Revised targets and dates: Development of training modules to increase the safety of schools. 0 training modules prepared in 2009; 4 training modules prepared in 2010; 3 more training modules prepared in 2011.</p>	<p>Seven (7) modules and guides drafted:</p> <ol style="list-style-type: none"> 1- Evaluating Vulnerability and Risk 2- Anti-hurricane and anti-seismic hurricane 3- Team work 4- Project Management 5- Social Accountability 6-Role of School Facilities 7- Parent-Teacher Relationships 	

Annex 3. Economic and Financial Analysis

No economic analysis was done for this project.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Solange A. Alliali	Senior Counsel	LEGES	
Sophia Guerrier-Gray	Legal Analyst	LEGLA	
Peter Anthony Holland	Senior Education Specialist	LCSHE	
Marsha Michel	E T Consultant	LCSHD	
Glenn S. Morgan	Regional Safeguards Adviser	LCSDE	
Fily Sissoko	Lead Financial Management Spec	AFTFM	
Yao Wottor	Senior Procurement Specialist	LCSPT	
Supervision/ICR			
Solange A. Alliali	Senior Counsel	LEGES	
Peter Anthony Holland	Senior Education Specialist	LCSHE	
Axelle Latortue	Consultant	LCSHE	
Asako Maruyama	Consultant	LCSHE	
Marsha Michel	E T Consultant	LCSHD	
Fily Sissoko	Lead Financial Management Spec	AFTFM	
Aracelly G. Woodall	Senior Program Assistant	LCSTR	
Yao Wottor	Senior Procurement Specialist	LCSPT	

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY09	0	97.37
Total:	0	97.37
Supervision/ICR		
FY09	0	30.73
FY10	6.196	114.68
FY11	9.365	79.18
FY12	4.437	83.69
FY13	0.738	15.45
Total:	20.736	323.73

Annex 5. Beneficiary Survey Results
(if any)

N.A.

Annex 6. Stakeholder Workshop Report and Results
(if any)

N.A.

Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR



Economic and Social Assistance Fund (FAES)



Ministry of National Education and Vocational Training (MENFP)



Banque Mondiale

Emergency School Reconstruction Project (PURES)

End-of-project report

June 19, 2012

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ACRONYMS AND ABBREVIATIONS

CS	: Community stakeholders
ACDI	: Canadian International Development Agency
AGERCA	: Disaster Management Alliance and Business Continuity Committee
IDB	: Inter-American Development Bank
WB	: World Bank
RO	: Regional Offices
BRH	: Bank of the Republic of Haiti
BRS	: Regional Office - South
BRSE	: Regional Office - South East
CGE	: Environmental Management Framework
DAEPP	: Department for Support and Partnership for Private Schools
DAF	: Administrative and Finance Department
DG	: Executive Management
DGS	: School construction department
DPC	: Directorate of Civil Protection
DPRI	: Department of Promotion and Institutional Strengthening
DPS	: Directorate of Social Projects
DSE	: Directorate of Monitoring and Assessment
EFA	: Education for All
FAES	: Economic and Social Assistance Fund
FONHEP	: Haitian Foundation for Private Education
GoH	: Government of Haiti
FGHI	: Fay (tropical storm), Gustave, Hannah, Ike (hurricanes)
RDM	: Risk and disaster management
IDA	: International Development Association
LNBTB	: National Laboratory of Building and Public Works
MDE	: Ministry of Environment
MEF	: Ministry of Economy and Finance
MENFP	: Ministry of National Education and Vocational Training
MICT	: Ministry of the Interior and Local Authorities
MPCE	: Ministry of Planning and External Cooperation
MTPTC	: Ministry of Public Works, Transport and Communications
NI	: Nippes
SP	: Service Providers
NAPSS	: National Action Plan for Safe Schools
SE	: South East
RDME	: Risk and disaster management expert
SNGRC	: National Strategy for Disaster Risk Management
SPGRD	: Permanent Secretariat for Risk and Disaster Management
CE	: Procurement expert
TF	: Task force
TOR	: Terms of reference
EU	: Environment Unit

I. Situation at the start of the project

1.1 Economic and social conditions

In August 2004, amidst political and economic turmoil, a new government emerged in Haiti with the objective to ensure a smooth transition and to secure international aid. This was followed by the creation of a macroeconomic framework that resulted in some improvement in economic growth. The framework was drafted in light of the social unrest and political transition that had occurred earlier in the year, with an emphasis on the country's deplorable living conditions and impoverished social services. Then, in April 2008, skyrocketing food and gas prices led to more upheaval and violent riots that forced the Prime Minister to resign. The new government formed in September 2008 was faced with serious issues, ranging from the delivery of quality public and social services (which were practically non-existent at the time) to safeguarding families' capacity to invest in their children. The situation was further compounded by the hurricanes that battered the country in August and September 2008.

During this period, Haiti was pummeled in quick succession by tropical storm Fay and hurricanes Gustav, Hanna and Ike (FGHI), which damaged key public and social infrastructures, and killed or injured hundreds of people. Deeply alarmed by this emergency situation, the government, led by the Ministry of Planning and External Cooperation (MPCE), and with the support of various partners, including the World Bank, the United Nations, the European Commission and the IDB, proceeded to evaluate the country's post-disaster needs. This assessment estimated the overall impact of FGHI on Haiti's socioeconomic development, and outlined a preliminary strategy for short-, medium- and long-term reconstruction and relief. It also aimed to help the government reinforce its national disaster risk management system (through strategic and technical aid), and effectively and coherently implement the activities identified.

1.2 Priorities of the education sector

Data from the assessment pegged the damage and loss in the education sector at close to US\$70 million. According to official statistics, nine hundred and sixty-four (964) schools were severely damaged, affecting over two hundred thousand (200,000) children. Because the assessment ordered by the Ministry of National Education and Vocational Training (MENFP) focused largely on public schools, which account for less than 20% of the country's schools, these figures no doubt underestimate the extent of the damage and the ensuing needs. Even before the havoc wreaked by the latest hurricanes, the country's schools were already in a pitiful state due to damages inflicted by hurricane Jeanne in 2004, which had yet to be cleaned up, and numerous other schools were crumbling due to decades of neglect.

To make matters worse, on November 7, 2008, a school collapsed, killing close to 100 students and injuring 150 others. This was followed a week later by another school collapse that injured a dozen students. The cause of these tragedies: the shoddy craftsmanship that plagues the construction industry, making Haiti's schools extremely vulnerable. The school collapses also drew attention to the absence of building codes and regulations in Haiti, and the public authorities' inability to oversee and enforce school construction standards.

In response to FGHI, the Haitian government passed the *Loi sur l'état d'urgence* [State of Emergency Law] in September 2008, allocating US\$4 million to emergency relief for schools. The State of Emergency Law contains provisions on fast-tracking the procurement process, enabling contract firms to carry out emergency relief measures, including the building of schools. The government also allocated close to 200 million gourds (approximately US\$4.5 million) for the emergency school reconstruction and rehabilitation activities identified by the MENFP during its damages and needs assessment. The Ministry of Economy and Finance (MEF) and the MENFP signed an agreement protocol with the Economic and Social Assistance Fund (FAES) to carry out these activities, via the Emergency School Reconstruction Program (PURES).

1.3 Activities of the World Bank and other sector financial backers

The proposed project is an essential component (in the education sector) of the World Bank's general response to the emergency situation created by tropical storm Fay and hurricanes Gustav, Hanna and Ike (FGHI) in August and September 2008. This project will help the Haitian government to respond quickly and efficiently to the damages caused to school infrastructure and to improve its level of preparedness for future emergencies. The proposed donation comprises additional funding for public activities already underway, and technical assistance to improve current procedures. This WB contribution is in addition to funds from other financial backers, specifically the Inter-American Development Bank (IDB) and the Canadian International Development Agency (CIDA), to assist with the reconstruction efforts.

Various other financial backers have contributed the education infrastructure reconstruction efforts in Haiti; during the initial crisis, UNICEF provided tents to schools whose roofs had been damaged or destroyed, and CIDA stepped up its support for the tuition waiver program by co-financing the Education For All (EFA) program with the IDA. The IDB, CIDA and the *Agence française de développement* (AFD) are all at the stage of drafting plans to improve education infrastructure in Haiti.

II. Implementation

2.1 Approach

The institutional approach paved the way for a proposed project to be spearheaded by the FAES, in close collaboration with the MENFP. This approach comprises three elements: i) a subsidiary loan agreement between the MEF and the FAES, stipulating the FAES's obligation to draft and monitor reports and audits for the proposed project, and to comply with the terms and conditions of the IDA's donation agreements, the operating manual, and the World Bank's and IDA's procurement guidelines; ii) an agreement protocol signed by the parties outlining the roles and responsibilities of the MEF, MENFP and FAES; iii) a steering committee comprising a senior representative from the MENFP, MEF, FAES, Directorate of Civil Protection (DPC) steering committee, and Permanent Secretariat for Risk and Disaster Management (SPGRD) to develop general strategic orientations for the project.

In addition to this approach, the technical diagram outlines the first phase of the program, consisting in identifying, assessing and providing relief for schools in need of reconstruction. As such, the MENFP drew up a long list of schools and other public

education infrastructure that had suffered damages. The Ministry of Economy and Finance (MEF), via the MENFP, had freed up emergency public funds (State of Emergency Law adopted in October 2008) to restore access to schools in the affected areas, and the MENFP had signed two contractual agreements with the FAES designating the latter as manager of these emergency public funds. To speed up the process, preparatory work was begun on the program to (i) assemble the FAES team and (ii) finance the school pre-qualification process and capacity-building at the DGS.

Tasked with managing the program's finances, the FAES was asked to update the operating manual and the accounting software. It was to ensure that i) unaudited interim financial statements (IFS) were produced and sent quarterly to the Bank within 45 days of the end of each quarter; audited annual financial statements were to be sent to the Bank annually within four months of the end of the budget year; ii) disbursements were made according to the procedures stated in the *Disbursement Handbook for World Bank Clients*, which authorizes the use of advances, reimbursement, direct payment or a special commitment; iii) the procurement process for the proposed project is carried out in compliance with the World Bank's *Guidelines: Procurements under IBRD Loans and IDA Credits* from May 2004, amended October 1, 2006, and in compliance with the *Guidelines: Selection and Employment of Consultants by World Bank Borrowers* from May 2004, amended October 1, 2006, and the provisions stipulated in the legal contract; iv) a follow-up/assessment was submitted by the steering committee and the project assistant to the WB and the FAES.

2.2 Project preparation

A detailed table of project costs was drawn up jointly by the WB and a local team. According to the project preparation plan, the MENFP and the FAES would take preliminary actions using national funds equivalent to US\$400,000, which would be reimbursed to the GoH. These funds would be used to acquire equipment for the DGS and cover the costs of missions tasked with identifying the schools to be rebuilt; for the FAES, this advance would cover the costs of preparing and assessing pre-qualification files for the proposed projects.

The effectiveness of this operation was dependent on the institutional and technical capacities of the FAES, an independent Haitian government agency under the stewardship of the Ministry of Economy and Finance. The FAES Board of Directors, chaired by the Ministry, is comprised of nine members. The FAES was created in 1990 and has since invested several millions of dollars in hundreds of community projects related to education, health, drinking water, basic sanitation systems, and farming. In the education sector, the FAES has invested a total of US\$40.5 million over the last 10 years to build 547 public schools, staffed by a total of 132 people, 83% of whom have a graduate teaching degree. Its head office is located in Port-au-Prince and it has six regional offices.

As the agency in charge of implementing the PURES project, the FAES is responsible for managing the reconstruction and rehabilitation of schools, necessarily implying its ability to rise to the challenge. During a technical assessment, the project's lifecycle and the procedures manual were closely examined and deemed to be satisfactory. The FAES has substantial experience working on large-scale civil engineering projects in the social

services sectors, and none of the schools that it built in recent years was damaged by the tropical storm or hurricanes. However, the FAES will receive support from the MENFP's School Construction Department (DGS), which will also play a general quality-assurance role by visiting the schools two or three times during the construction process. This MENFP department is slated to receive institutional support in order to gradually improve its effectiveness.

The FAES and the DGS were involved in the project design, under the leadership of a WB team, creating added value that stemmed from the pooling of expertise by these agencies, but also from lessons learned and applied in the project design process. In fact, the proposal takes into account lessons learned during previous WB operations in Haiti, and its general experience with disaster response and relief operations. These lessons specifically include:

- the opportunity to develop a cost-benefit analysis and priority-setting method;
- the option to hand over the reins of the project to the Ministry of Education, the local public authorities and the community, to ensure its success and sustainability, specifically with respect to maintaining schools;
- the need to implement hurricane protection systems in schools and medical centers;
- an inventory and summary of good practices in terms of construction codes and standards to ensure facilities are rebuilt according to international standards;
- the application of construction standards to ensure vulnerable buildings are hurricane resistant;
- the preparation of an in-depth risk assessment, a risk response plan, and key infrastructure rehabilitation plan.

Other, more qualitative lessons were incorporated into the project design:

- simplified objectives limited to one or two sectors;
- recourse to current executing agencies, which will receive more support;
- a set of significant technical assistance measures to support implementation and build capacities.

2.3 Monitoring and assessment

A major challenge in implementing the project was to ensure appropriate coordination between the DGS (as project steward) and the FAES (as project implementer). Another challenge consisted in improving education infrastructure in Haiti, which is characterized by poor maintenance, especially with respect to sanitation facilities and drinking water. Accordingly, the World Bank proposed stepping up its supervision efforts during the two-year project implementation phase and adding more staff at its Haiti office, enabling it to better supervise the project team. Finally, the steering committee would play a central role in the supervision and monitoring process.

The FAES comprises a monitoring/assessment department tasked with planning and monitoring actions, and conducting an annual assessment to gauge the initial impacts of this initiative. Statutory reports were produced to shore up strategic and operational decisions.

2.4 Changes to the project

Changes made to the project design were implemented from the outset. In fact, these changes were minor, with the exception of selection of the project manager—the choice of the FAES was not self-evident. During the analysis of the implementation approach, a number of different options were considered and rejected. Initially, the design team had considered the option of handling this project as an additional donation to the Education For All program (APG 1), but then realized that the reconstruction activities did not correspond to the project implementation objectives defined by APG 1. Then, the team examined the possibility of the MENFP acting as the executing agency for the entire project, with support from the MENFP’s EFA project coordination team. Finally, given the MENFP’s limited capacities, it was agreed that appointing the FAES as the executing agency was the easiest and most effective decision. Due to its structure and internal organization, the idea of appointing an FAES program manager to oversee this program, as suggested by the World Bank, was not retained.

More substantial changes were made to the implementation approach, albeit minor compared to the overall scope of the project, for example, the construction, support and reinforcement of school structures, the partnership established with the Civil Protection Agency, and (in the technical field) the systematic performance of geotechnical surveys at all selected sites. In the meantime, an earthquake struck on January 12, 2010, throwing the construction process into a tailspin. The real causes of the colossal damage were thrust into the spotlight, forcing a serious evaluation of construction methods and materials. This led to conservative coercive measures pending the drafting of new construction codes that would incorporate hurricane-proofing and earthquake-proofing measures.

These new measures, which were not included in the original approach, brought up other financial and technical considerations, which, in order to be addressed, required unplanned expenses and changes, and it became clear that the results would not likely meet the set objectives. New assignments for new activities meant that the projected targets would be below expected levels, insofar as their initial description would require appropriate financial adjustments.

III. Program results

3.1 Appropriateness

3.1.1 Program design

The design required teamwork between the various WB and Government stakeholders to consider recurring problems related to natural and environmental phenomena. The program was also inspired by similar experiences in other areas which, although configured differently, are forced to deal in a trial and error manner with weather and environmental issues related to hurricanes and cyclones. From this point of view, the appropriate response involved integrating all stakeholders smoothly into the decision-making process. From identifying the site to be rehabilitated to achieving the end goal—a functional school managed by qualified individuals—these stakeholders followed in a logical sequence: the MENFP’s School Construction Department (DGS), the sector manager, the community benefitting from the initiative to be made sustainable. The FAES would be involved as facilitator to help achieve the target objectives, initially to help in this identification process, but also to implement and manage the structure, while

considering all elements that could disrupt the cycle and identifying tailored solutions. In this respect, this appropriate approach is consistent with the situation that characterized the FAES's actions in this sector, leading to positive initiatives in the form of tangible improvements to schools. The process proposed by the program definitely corresponds to the expectations of system stakeholders, and its application will definitely meet sector priorities and the requirements of the government's and financial backers' policies.

3.2.1 Program objectives

Rebuilding better the public primary schools that were destroyed and/or seriously damaged, and minimizing and mitigating the vulnerability of schools were two of the main objectives of the PURES program. The first of these objectives would be achieved through the activities of component 1 and would therefore pertain to the "hardware," whereas the second would be achieved through component 2 and would focus on quality; as such, it would pertain to the "software" of a safe school infrastructure. Through capacity building, communication activities, consultations with stakeholders, and training and involvement of partners at the central and local levels, component 2 will create solid foundations for PURES to promote the adoption of new methods for building safe schools.

The notion of "building back better" also implies new schools built according to higher construction standards, so as preserve the structural integrity of schools, but also to support the community's involvement during and after the civil engineering projects. Although not required to contribute financially to the school rebuilding projects, these communities will be consulted and kept regularly informed during the reconstruction process, as true partners in the new approach to building safe schools. As such, a new vision will be promoted, as well as a strategy and new methods for building safer schools. Through PURES, it must be demonstrated that (i) school construction good practices are important and economically feasible and (ii) through investments in prevention, preparedness and maintenance, the education sector will be better able to withstand natural disasters.

Overall, involvement at all steps is often the first condition of responsible management, which guarantees the prevention and maintenance needed for sustainable structures. Accordingly, the program anticipated community involvement, in addition to the FAES's roles and responsibilities in the civil engineering projects, and the DGS's role in terms of monitoring quality in general. This coherent approach to harmonizing resources to achieve results shared by all partners could eventually lead to the restructuring of an entire sector; in this sense, its appropriateness would only be limited by the community's dedication to upholding this system.

The results analysis will focus on the achievement of the program objectives deemed appropriate. However, there are already doubts as to the actions chosen versus the actual capacity to implement them. The resources planned for the implementation of certain activities were not always inventoried before the start of the work, meaning that the results were not always appropriate. However, the initiative will have created a dynamic that will eventually yield positive effects, both in terms of safe infrastructure and better management.

3.2 Results indicators

The general analysis will focus on the possibility of reestablishing and maintaining access to education in the long-term by improving the quality of schools, and emphasizing the appeal and appropriateness of new, proven school construction methods to stakeholders and financial backers in the education sector. An ex-post evaluation will collect data on the occupancy rates of rebuilt schools during the school year following completion of the civil engineering work, and the actual adoption and gradual application of safe construction methods under the school construction program to determine the degree of achievement of the development objective. However, the interim results already indicate a trend with respect to scheduled and achieved outputs.

3.2.1 Component 1

The forecasts were set during the design phase in 2009; however, everything changed with the earthquake on January 12, 2010. From that point on, the only way to guarantee safe, solid schools was to systematically consider geological factors, and make adjustments as required. As such, geotechnical surveys were conducted for all schools to be built, meaning that already-high construction costs in Haiti would increase still further. Based on the unit cost used for the program, we were expecting the emergency project to finance the complete and partial reconstruction of school buildings and equipment (for approximately 15 schools). The need to perform geotechnical surveys and adapt the plans to specific conditions added to the cost, and we had to settle for building fewer, more sustainable schools, rather than more, less solid ones (as per the initial program logic).

The strategic approach that consisted of rebuilding or rehabilitating schools according to satisfactory technical standards, and of equipping some of them with an emergency shelter and improved facilities (such as latrines) was therefore a non-starter from the outset. The earthquake changed the conditions, and the new approach implied higher labor costs (for which estimates were already tight). This forced us to eliminate certain items, i.e. fences, playgrounds, outdoor facilities, improved toilets, from the construction plan, all of which would have contributed to the notion of “building better.”

However, the community involvement component is likely to produce results, which will be evaluated after the infrastructures. In fact, the competencies needed to produce results were applied toward producing the framework for a functional approach. In addition to the tools needed under the circumstances, school participatory management structures received special training, on social responsibility, for example, and community stakeholders were mandated to encourage cooperation and partnership between community members. In addition, open house days on risk and disaster management were held in collaboration with the Ministry of the Interior and Local Authorities’ Directorate of Civil Protection (DPC) as a way to shore up interventions and involve students in the school management process.

Another parameter of the notion of “rebuilding better” consisted in drafting and implementing a Social and Environmental Management Framework (CGES). During the project execution phase, the monitoring visits focused on waste management, water management, worker protection, dust emissions, civil protection, and worker education. In some respects, this implied an approach that was sensitive to improved environmental

management methods. Recommendations made on these observations by the FAES Environment Unit identified actions needed to address the environmental problems encountered on the PURES sites.

The outputs¹ were achieved based on data in the table below.

Component	Baseline (2009)	Target	Achieved	Comments
Component 1				
1.1 Schools rebuilt or rehabilitated according to satisfactory technical standards	0	15	11	The earthquake required the addition of certain unplanned activities to the program, which increased costs and led to fewer outputs of lesser quality (items were eliminated from the original plan).
1.2 Schools equipped with an emergency shelter and improved facilities.	0	5	4	All of these schools are included in the group of 11 schools.

It is definitely possible, economically feasible and rational to build schools according to the “building better” strategic approach, and to equip and use schools as emergency shelters, although this requires adequate means. A tighter budget, with little room to maneuver, resulted in merely acceptable structures. The project as designed has still not been completed.

However, apart from certain delays at all steps, the implementation process was carried out for all schools. As a result, the 10+1 schools that were built amounted to seventy-one (71) completely renovated classrooms, available for use by three thousand five hundred and fifty (3,550) students in the Sud-est and Nippes departments. The effects of these achievements were more qualitative than quantitative, in that the forecasts had stipulated eighty-five (85) classrooms for use by four thousand two hundred and fifty (4,250) students. The shortfall was obviously due to the fact that fewer schools were built (11/15) because of the increased construction costs, and to the addition of new activities (systematic geotechnical surveys) and the situation created by the earthquake. Also note that adding a hurricane shelter in four of the five target

- Activities of component 1**
- Construction activities for the 11 infrastructure projects**
- Site identification
 - Selection (DGS/FAES)
 - Environmental assessment (FAES)
 - Social assessment (FAES)
 - Technical surveys
 - Topographic surveys (outside firm)
 - Geotechnical surveys (LNBTP)
 - Architectural surveys (outside firm)
 - Execution (outside firm)
 - Supervision (outside firm)
- Community involvement**
- Recruitment (community workers; consultants to provide training on social responsibility, the role of schools, and parent-teacher relations; communications expert)
 - Open house days
 - Information and awareness meetings
 - Production and dissemination of

¹ Additional information contained in the activity report prepared by the Social projects department.

zones is a possibility.

3.2.2 Component 2

The mediocre quality of Haiti's education infrastructure needs to be addressed. The stakeholders need to be able to organize in-depth discussions on the problems and causes, and agree on a strategic framework and plan for addressing the chronic problems related to the country's inadequate schools. Simultaneously, the National Action Plan for Safe Schools (NAPSS) needs to produce the tools required to improve safety in schools at the national and local levels, and to raise education stakeholders' awareness of the buildings' vulnerability to natural disasters and of relief measures. Its implementation would provide support for activities beyond the scope of the project, since NAPSS would serve as a medium- and long-term action plan for the GoH.

In terms of the NAPSS, compared to the anticipated results, the plan clearly did not achieve the level of satisfaction expected. Of course, some of the actions anticipated initially were achieved: i) The MENFP's School Construction Department (DGS) assessed 158 schools based on evaluation grids developed by a consultant; ii) the workshop on safe schools was attended by some 100 people who debated the advancement of the NAPSS and the vulnerability of the schools. However, the NAPSS was to be overseen by the task force², which never got off the ground due to problems getting all member institutions together on a weekly basis; it was replaced by an *ad hoc* committee. In conclusion, following the workshop, the consultant submitted the NAPSS workshop report and a technical document, which were submitted to the NAPSS monitoring committee and the World Bank, each of which made comments and suggestions. In the end, this work did not result in a final plan.

The activities carried out include the publication of the training manual and vulnerability assessment guide, and the revision of the task force/monitoring committee's manual and vulnerability assessment guide. However, note that while the revised manual and guide emphasizes the major risks in Haiti and helps to identify local threats (environment immediately surrounding the site), it does not assess them; this is also the case with structural and non-structural vulnerability. The initial version of the guide was lacking **objective criteria** for determining risk levels, and the revised document did not address this problem. As such, the publication of these documents was cancelled. Moreover, the consultant did not provide the necessary support to the DGS.

***Main activities of Component 2
National Action Plan for Safe
Schools (NAPSS)***

- *Assessment of vulnerability and analysis of risks to existing schools*
- *Organization of a national workshop on the construction and maintenance of safe schools*
- *Development of NAPSS implementation plan*

Reinforcement of DGS

- *Rehabilitation of the site*
- *Acquisition of equipment and materials*
 - *Vehicles (2)*
 - *Motorcycles (1)*
 - *Hardware and software*
 - *Internet service*

² The task force was to have been chaired by the MENFP and the FAES, and include representatives from the Directorate of Civil Protection (DPC) and the Permanent Secretariat for Risk and Disaster Management (SGPRD).

As for component 2.2, we can venture to say that the DGS has the trained staff and resources needed to fulfill its mission and become an instrument of change for promoting better standards and practices for education infrastructure. Under this program, it fulfilled its mandate to perform pre-qualification visits to the rebuilt schools, carry out general supervision (quality control) missions to each school built, and train trainers. In fact, the DGS received substantial support in terms of equipment, materials and training. Its offices were renovated, and it received IT and logistics support. Project management training (albeit partial) was initiated, and should yield some results. However, it remains to be seen if this support for the DGS (MENFP agency responsible for managing education infrastructure) was adequate. The DGS is the sector authority in this regard and, as such, should have the competencies and materials needed to carry out this management mandate. The process should have involved a thorough initial diagnosis to identify problems and find appropriate solutions. Unfortunately, we are forced to conclude that the workshop designed to identify initial needs was inadequate. The DGS was generally late in processing its files (site pre-qualification, school assessment and activity reports); however, it collected data on the vulnerability of schools that should be useful in drafting the preliminary version of the NAPSS, despite being mostly disregarded by the consultants working on the summary document.

IV. Program performance

4.1 World Bank

The appropriateness was discussed in chapter III of the program results, where it was stated that the objectives chosen by the designers addressed a real need and, as such, were consistent with the needs of all program partners. This is still the case, even after implementation; if all components had been achieved equally, we might even have considered the possibility of modeling. Henceforth, no such process will be designed without referring to the results of this program in terms of analyzing achievements and shortfalls in order to make the necessary adjustments. There is no question that this success can be credited to the World Bank, which demonstrated real leadership at the design stage.

The implementation process, however, was not always smooth. The supervision process consisted in analyzing the process sanctioned by an objection or, on the contrary, the authorization of a validated process. This did not always go well, and the process was often delayed due to a tacit objection until the validation visa was issued; the wait was long on several occasions. And when the no-objection, which was absolutely necessary, focused on all the details of the operation, this led to complications for the FAES to which it was not accustomed and, consequently, a delay at all levels.

The supervision also involved monthly follow-up meetings with all program partners, at which the WB was present almost systematically. This attitude created positive feelings that boded well for a productive and innovative partnership. However, the success of this follow-up absolutely depended on tangible results, facilitated by a solid understanding of potential problems down the line, as well as the identification of appropriate solutions. The FAES's opinion is that the numerous changes in program leadership—three times during the process—did not help the situation. Individual personalities and work methods came into play, overriding a systematic approach, and adjustments were not always made

in a timely manner; this is especially true since a system sometimes depends on the stakeholders' understanding of it and its end goal, to the detriment of its effectiveness.

4.2 Government and executing agencies

The Economic and Social Assistance Fund (FAES) was perceived as the agency that would successfully implement a relevant concept using methods proven effective in the past, unlike the DGS, which required reinforcement due to insufficient results and its weak education infrastructure management capabilities. The fact remains that the FAES is strengthened by the diverse and relevant experiences it encounters regularly through its partnership with the financial backers. As such, it tends to lean heavily on these experiences, to emphasize their positive spin-offs, and attempt to exercise rights and privileges it acquired in the successful implementation of other programs. However, it has all but forgotten that its evolution was a long process, and that in the field of cooperation, there are no acquired rights, and that it must prove its legitimacy on a daily basis. Compliance with contract clauses and operating procedures, and the understanding of the implementation process are all elements with the possibility to be sustainable. In this sense, approximations will only garner bad publicity, and eventually it may prove counterproductive to constantly dwell on past experiences, however successful they may have been; instead, it is important to periodically reassess and realign in the quest for perfection. In conclusion, given the “trial and error” approach to program coordination and the internal dissention at the FAES, not to mention difficult communications with the regional offices, it's no surprise that the expected results were only partially achieved and performance was generally mediocre. The FAES could have done better and needs to prove its true capacity in a situation that it must contribute to improving.

While the school pre-qualification process was carried out successfully by the DGS (which was to have been reinforced under the program), the same cannot be said about other activities, such as supervision. Reinforcement necessarily implies an openness to sharing experiences, receiving specific training, and acquiring the equipment and tools needed for timely interventions; but it also implies the capacity to draw up a balance sheet of actions—a list of results achieved compared to joint objectives set, in the form of technical and administrative reports that can be seen as reliable sources of information. Reservations as to this reinforcement assessment criteria indicate its true scope, and raise questions about the efficiency of certain actions, specifically the supervision missions.

V. Sustainability

The OCDE Glossary of Statistical Terms suggests that sustainability refers to the maintenance of benefits stemming from a development initiative after the end of said initiative, and the likelihood of seeing long-term benefits. It refers to a situation in which the benefits are likely to withstand risks, implying a certain degree of organizational motivation, viability of mechanisms implemented, financial viability of the structure managed, maintenance of infrastructures, and anticipation of environmental risks.

Engagement was one of the key actions in the original process. Built on community organizations set up to oversee the future management of the project, engagement manifests through these organizations' drive to manage and maintain the infrastructure. However, the weak link in this approach was the absence of a maintenance plan and

sufficient financial means to make the process viable. As such, it is built on local structures to be set up by the sector's managing authority via its departmental representatives; however, we're all too familiar with the ineffectuality of these structures, which will eventually hold back this initiative. Once again, the government's lack of resources makes it very difficult to achieve results in this regard. Nevertheless, we must try to identify sustainable actions that could support the objectives.

We can start by identifying actions that could be viable and even sustainable. As such, if the means were available, along with revitalized management structures, infrastructures would last much longer than their average ten-year lifespan, which is much too short for a country that has been bled dry. As for the National Action Plan for Safe Schools (NAPSS), it is unacceptable that it did not perform up to expectations. The initiative could easily be sustained in that it addresses a vital need to improve schools' ability to withstand natural disasters, in an already weakened country that is made even more vulnerable because of poor planning. For once, efforts were mobilized from all sides, and if this motivation is sustained through constant follow-up, it should reinforce the decision to systematically consider preventive measures.

However, reinforcement of the DGS proved to be a purely cosmetic exercise in that it was not very useful, especially given the overall development of this agency. Nothing short of continuous and concerted action could lead to the reforms needed at the DGS to manage education infrastructures. To understand the scope of this reinforcement, we need to consider the DGS from the perspective of its branches, its mandate, and its role within the Ministry. This requires a rational approach that was not really applied. The challenge is a sizable one, since we need to see beyond this one element to consider the whole.

VI. Project lessons and recommendations

6.1 Lessons

6.1.1 Overall reinforcement approach

To be effective, any reinforcement approach must take into account the situation to be changed, from the overall perspective of improving a service to be delivered. In the absence of an institutional assessment detailed enough to determine the paths and means of this process, an in-depth diagnosis is required to gauge the status of the situation to propose appropriate solutions to the problems identified; this will determine which resources will be used. The obvious dissatisfaction with the DGS, which received reinforcements from this emergency program, stems from the *ad hoc* nature of the initiative which, in this case, may have been justified but should have involved a more rational consideration of the causes and effects, which needed to be considered in the overall context of the structure. This is the only way that sustainability can be possible.

6.1.2 Control of unit costs

The problem of unit costs is a recurrent one at FAES; the fact that it needs to be controlled is always mentioned at the start or end of a program, although without any real solutions being proposed. While the procurement process makes the FAES less dependent on a unit cost system, a reference is still needed to manage unit costs and facilitate the decision-making process as they evolve. At the start of PURES, the costs of the various actions were validated, but without comparing them against any other costs;

without establishing a direct correlation, it is difficult to rule out that the “trial and error” approach or the decision to eliminate certain key elements from the “building better” concept (thus renouncing outputs from this qualitatively value-added exercise) may have resulted from insufficient control over this crucial parameter.

6.1.3 Constraints of the no-objection

In principle, before any action can be taken, the Bank must issue a “no objection”; this comes at a cost. In addition to increasing the deadline, the process risks becoming farcical if its strict observance is required systematically. This “no objection” is sometimes accompanied by general conditions, i.e. the systematic submission of proforma reports. We understand that FAES’s strategy sometimes leads it to implement actions in environments where services are virtually non-existent, and where work methods are informal. These conditions lead to complicated exercises, sometimes at minor costs compared to the average cost of the action, no doubt needed meet mandatory requirements. However, the program supervisors should be able to understand and react to possible setbacks; when this reaction takes time, then things do not get done on time.

6.1.4 The nature and role of supervision by the WB

The WB’s supervision role should largely be facilitating. During the project design phase, this may have been the case, but despite successive follow-up meetings, the supervision was not perceived very positively or objectively by all parties. It was inconsistent, carried out by successive stakeholders who used different methods and approaches. The intransigence shown by one gave way to appeasement by another and, as with an orchestra that responds to the whims of a succession of conductors, the results were not always harmonious. The financial backer’s role should perhaps be to seek harmony in the aim of long-term success, unless the project assessment reveals complete dissatisfaction and there is a demand for significant change.

6.1.5 Development of the NAPSS: a transverse approach

The initial objective was to recruit a consultant to draft a National Action Plan for Safe Schools (NAPSS). However, this activity is part of a transverse approach requiring input from a multidisciplinary, multi-sector team. It would be extremely difficult for a consultant to draft such a plan from a technical perspective, or even to finalize the political framework essential to its implementation. As such, following the NAPSS workshop, the consultant submitted a report and a technical document, which were submitted for approval by the NAPSS follow-up committee and the World Bank, which made comments and suggestions. In the end, the work done did not result in a completed plan; this type of transverse approach requires having firm control over the action by appropriate resources, which must be identified and made available as early as possible in the process.

6.1.6 Open house days

In order to foster discussions on good practices between development agencies, the Haitian government would benefit from promoting partnerships between government agencies, community organizations, and other community development stakeholders. The partnership between FAES and the Ministry of the Interior and Local Authorities (MICT) was key in strengthening the communities targeted by the PURES.

To ensure the sustainability of the actions and involve students in the management of their schools, risk and disaster management open house days were organized by the MICT's Directorate of Civil Protection (DPC). The theme of "Civil Protection at School" selected for these events was intended to draw students' attention to the important role played by Civil Protection, and to educate them about what to do in a disaster.

The level of community involvement was rated satisfactory thanks to the services provided by the community stakeholders, regional offices and the DPRI; however, the aim of effective management, specific maintenance efforts still need to be made. Not only did the FAES rely on technicians from the DPC, it also received technical support from the UNDP, UNESCO, and the Haitian National Police via the Thematic Committee on Education and Public Awareness (CTESP). Numerous meetings were held with the DPC and the CTESP to organize open house days, and training sessions on risk management and disaster response.

6.2 Recommendations

Given the extreme vulnerability of schools in Haiti, finalizing the National Action Plan for Safe Schools (NAPSS) is of crucial importance for the country; as such, it is recommended to see this process through to completion. The technical document produced by the program can be used to finalize this plan, under the coordination of the Ministry of National Education and Vocational Training (MENFP). In order to fully integrate all elements of the plan, it would be important to hire a consultant, facilitator or coordinator for the multidisciplinary, multi-sector team.

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

Forthcoming

Annex 9. List of Supporting Documents

Declaration of General Policy of the Prime Minister—May 2012 (*Enoncé de Politique Générale du Premier Ministre*)

Financing Agreement (Emergency School Reconstruction Project) between Republic of Haiti and IDA, April 9, 2009.

Government of Haiti - The Operational Plan for Education 2010-2015

Project Paper on a Proposed Grant in the Amount of SDR3.4 million (US\$5.0 million equivalent) to the Republic of Haiti for an Emergency School Reconstruction Project, February 17, 2009.

Restructuring Paper on a Proposed Project Restructuring of the Haiti-Emergency School Reconstruction Project Approved by the Board on March 5, 2009 in the initial Amount of SDR 3.4 million (US\$5.0 million equivalent) to the Republic of Haiti, May 4, 2011.

Restructuring Paper on a Proposed Project Restructuring of the Haiti-Emergency School Reconstruction Project Approved by the Board on March 5, 2009 to the Republic of Haiti, December 14, 2011.

World Bank - Interim Strategy Note for FY12-13

Annex 10: Excerpt from Independent Architect's Report on ESRP Schools

REPUBLIC OF HAITI
MINISTRY OF NATIONAL EDUCATION AND VOCATIONAL TRAINING
EMERGENCY SCHOOL RECONSTRUCTION PROJECT
(PURES)

WORLD BANK
(H 4600)

ASSESSMENT
OF
INFRASTRUCTURES
DANIEL DUPETY
CONSULTING ARCHITECT

MISSION OF SEPTEMBER 4-18, 2012

September 2012

4.1 Work quality

a. Design

During the site visits, the mission noted a certain number of design problems, as described below:

(i) All buildings

- The fact that the **buildings were inadequately designed** for the properties' grade required the contractors to build overly large and costly foundations (Silègue [05c to 05e], Anse à Veau, Grand Gosier [07j, 07n and 07m]). Apparently, many of these foundations were not planned in the original requests for proposals and were created with backfill during the additional work. It became evident that the assessments did not reflect reality, and that the topographic surveys were not accurate and/or did not take into account the actual grade;
- **Suspended ceilings** were used in some of the buildings without accounting for transverse ventilation of the roof space to prevent heat from building up under the roof and without taking the necessary measures to prevent bats from gathering in the roof spaces, which leads to foul odors, hygiene problems and significant damage to the suspended ceilings;
- At one school (Grand Gosier [07a and 07q]), the **roof** is made of corrugated galvanized iron, despite the fact that this school is located near the ocean. As such, these roofs will most likely deteriorate quickly in the seaside environment, especially since the fasteners are incorrectly installed (in the lower parts of the ribs);
- It was also noted that no joints were installed in any of the **cement coatings**. Joints are mandatory in rooms larger than 20 m², in order to prevent fissures and cracks.

(ii) Classroom buildings

- Apparently, the designers were given no instructions regarding the number, type and **position of classroom doors**: some classrooms have only one door, most have two doors in a variety of locations (same side, opposite side, diagonal from one another, in the middle of the classroom [01h, i, j, k], etc.), and even four double doors in one case (Anse à Veau [03i]). Some have only a single door (Haut Coq Chante³), while others have two doors that open to the inside or outside. This means that some of the classrooms that are already too small (para. 4.3 a below) are not very functional or that most of the non-essential doors are blocked by the tables (Haut Coq Chante [06e]), making emergency evacuations through these doors impossible;

³ At Haut Coq Chante, single doors are 1.25 m wide, partially blocking circulation from the gallery.

- Several classroom blocks were built facing east-west, whereas the preferred orientation is north-south (+/- 30°) to prevent the sun from shining directly into the classrooms. Where the property's configuration permits, this orientation should be respected;
- In addition, some of the classrooms themselves are poorly laid out: the main light source in the classrooms (on the opposite side of the gallery) should be on the students' left so that their hand does not cast a shadow over their school work. This is not the case in a number of classrooms at almost all the schools (Saut du Baril, Silègue, etc.);
- At one of the schools, several classrooms feature **windows** located behind the students, which violates all lighting rules. At Haut Coq Chante, the windows are not properly positioned vis-à-vis the cabinet [06g];
- At two of the schools (Anse aux Pins [02g] and Anse à Veau [03f]), the **dividing walls between the classrooms** do not reach the ceiling, which will definitely be a problem in terms of noise between adjacent classrooms.

(iii) Toilets

- The systematic use of **seated toilets** in the school bathrooms presents several major problems: they are much less hygienic than squat toilets, they are difficult to clean and maintain, and they break more easily (especially the seats and low flush mechanisms, which take a substantial amount of abuse from students). This also applies to the latrine seats (Brody [01n] and Platon de Cèdre [08h]), which also make it possible for students to throw all sorts of objects into the septic tanks;
- The **bathroom equipment** is not made to withstand the intense use of a school setting. The sinks, urinals, faucets, toilet seats and flush mechanisms will not hold up to heavy use by the students, who generally have no concern for school property. There is no sink at Grand Gosier; there is only one faucet on the outside of the building [07f];
- The **design of the bathrooms** at Haut Coq Chante is not functional: there is only one entrance (girls and boys) through a doorway with no door. It would have been better to have two separate, direct doors;
- In one case (Platon Cèdre), the bathrooms are not walled off, meaning that the latrines are used by neighbouring residents [08d, 08f, 08i];
- At one of the schools, the **stalls are configured** in a way that prevents the doors from being fully opened (into the stall), or the doors collide with one another (opening outward);
- In some cases (Grand Gosier), there is **not enough space for students to circulate** because their passage is blocked by the stall doors [07h]. The same problem applies in the showers, where doors are too large and circulation space too small (Grand Gosier [07g]);
- The project's **septic tanks** do not comply with the recommended three compartments for schools: some septic tanks have only one compartment (Silègue [05j]), have no manhole (for emptying and cleaning), and have no ventilation. Moreover, the cesspits have no manholes;

- The **dry latrine pits** cannot be emptied as they are located under the toilet blocks, and there is no projection in which to install manholes on the outside of the blocks;
- The **septic tank vent pipes** are too large in diameter, making them vulnerable. They are inadequately attached with iron wire or exposed fasteners; in one case, they are not attached at all (Grand Gosier [07z]). Moreover, T- or L-type vent pipes should be used to avoid rain falling directly into the septic tank, but the four vent pipes at Platon Cèdre do not comply with this recommendation;
- The cement **wall urinals** in the dry latrine blocks (Haut Coq Chante [06m]) are non-operational because there is no water supply, the cement is not protected and the drain is too small;
- The **sinks** (Anse aux Pins [02d]), bins (Haut Coq Chante [06n]) and water fountains are often too tall for primary school children;
- All of the **paint** used in the bathrooms is not washable, which poses a serious problem in terms of maintenance and cleaning.

(iv) **Dining hall and kitchen**

- The **dining halls** vary in size, but at one school (Haut Coq Chante) the dining room is much too small (50 m²) despite the fact that meals are served in three sittings (8 classes or 400 students to be served);
- The **number of doors** in the dining halls also varies significantly and is not necessarily determined by the size of the room;
- In most of the dining rooms, food is served through a **service window**, however, some schools do not have one. Many of the service windows are much too high for primary school students (at Saut du Baril, three stairs needed to be built so that students could reach it!). On the other hand, the service window at one school (Platon de Cèdre) is too low;
- The **kitchen equipment** varies from school to school, with no apparent rhyme or reason. One kitchen is not fully equipped and some have a drain board with no water supply (Haut Coq Chante). Others have space for a charcoal oven (Brody [01q] and Haut Coq Chante [06k]), despite the fact that charcoal cooking should be done outdoors under a shelter. Others have a single or double sink. The designers clearly did not research functionality issues in cafeteria kitchens;
- The **stainless steel sinks** and faucets are not solid enough to stand up to intensive use (Brody [01r], Grand Gosier [07p]). There should also be two separate water inlets for washing dishes and food;
- Two of the kitchens have no **direct exit**: in one, the exit is through the dining hall and in the other, through the store room. Normally, it should be possible to access the outdoor cooking area and the waste storage area directly (which was not planned for);
- There is a shortage of **storage space** in the kitchens (pantries, store rooms, cabinets) for implements, utensils, perishable and non-perishable food items, etc.

- As in the bathrooms, all of the **paint** used in the kitchens and dining halls is not washable, which poses a serious problem in terms of maintenance and cleaning.

(v) **Outdoor spaces and equipment**

Most of the outdoor problems involve equipment or spaces that were omitted or not completed due to budget shortfalls. They are as follows:

- Few schools are entirely closed off: the **fences** are not finished, some schools were only delivered the gates (Grand Gosier [07c]), and others have no fence to speak of (Platon du Cèdre);
- In some cases, there is no **access road** to the schools (Saut du Baril [04a and b]);
- **School yards** and **athletic fields** are incomplete at some schools (Saut du Baril [04d] and Platon de Cèdre [08d, 08e and 08f]), and at Grand Gosier, where one corner and sections of the sides of the athletic field are partially made of gravel (1.60 m), the school did not receive guard rails [03b and 03c];
- None of the schools has even a partial **drainage network**. On sloped properties, this risks causing serious erosion, especially under roof eaves not equipped with gutters (Platon du Cèdre [08o, 08p and 08q]). On flat properties, there is a risk of flooding, especially in completely paved school yards (Anse aux Pins [02b]);
- At Anse aux Pins, a section of the **retaining wall** collapsed, most likely because the necessary reinforcements were not planned for; without any drainage in the school yard [02b], which is located above the wall, water leaked into the retaining wall;
- Certain galleries with a foundation have no **guard rails**, which is against safety regulations (Anse à Veau [03b and c]). At Saut du Baril, the spaces between the bars on the guard rails are too large [04e]. At Silègue, a concrete bridge was built without guard rails, which is extremely dangerous for the students [05a]; and at Grand Gosier, there is no railing on the stairs up to the guard's house, despite the presence of a high foundation [07j];
- Some of the schools have **ramps** for disabled students that are much too steep. At Saut du Baril, most of the ramp is sloped correctly, but the entry is much too steep [04f]; in general, the access to the school is very steep and not at all user-friendly.
- Two **water fountains** are incomplete (container missing at Platon de Cèdre [08l] and faucets missing at Silègue [05k]) and most are too high (Brody [01m]) for the primary school children; the containers or receptacles are virtually flat (Brody [01n] and Silègue [05k]), which causes water to splash all over users; none of the fountains is equipped with a wastewater collection mechanism and the faucets are not sturdy enough for use in a school setting. At Haut Coq Chante, the receptacle is situated at the users' feet (no drain?), which is totally impractical [06q];

- The **electrical circuit breakers** are generally located in protected areas, but at Silègue, one circuit breaker is located outdoors on a gable with no overhanging eave [05m];

It would be extremely helpful if the MENFP and/or the FAES could find additional financing to complete the work, and especially to finish the fences to prevent intrusions and trespassing on school property, to enable the teachers to better monitor students' comings and goings, and to prevent neighbouring residents from using school property (latrines, water fountain, water tank, athletic field).

b. Quality of the work

In general, the quality of the work completed is good, although it varies from site to site and depends on a number of factors, notably the qualifications of the construction firms, the full-time presence of the work teams on the site, the quality of the materials used, the quality and accuracy of the surveys, and the rigorousness and frequency of inspections. The comments below apply only to some of the project infrastructures and are no reflection on the superior quality of most of the work done under the project.

The main flaws in work quality observed by the mission during its visits pertain essentially to the secondary trades, as follows:

- (i) Much of the cement is cracked;
- (ii) In one case, the doors are installed 10 cm above the cement (Anse à Veau [03g, h, i])
- (iii) The gutters and especially the fasteners and downspouts are either non-existent or in total disrepair (iron wires, non-galvanized fasteners at Grand Gosier [07k, i, l] and Platon de Cèdre [08m and 08n]). This also applies to the overhead water pipes and septic tank vent pipes (Haut Coq Chante [06d] and Grand Gosier [07z, 07t, 07y]). At Haut Coq Chante, there is a rainwater pipe (ep) running diagonally in front of a window in the Administration building [06o];
- (iv) The suspended ceilings in the Administration building at Saut du Baril [04h], which were poorly installed, were blown off by the wind;
- (v) In general, the sanitary and electrical installations are too flimsy and are not well suited to a school environment (see para. 4.3 (b) above); and
- (vi) The welding and fasteners on the roof are often of poor quality (see para. 4.3 (d) below);

c. Hurricane-proofing measures






One of the main objectives of the project was to “rebuild better” public primary schools and to reduce the vulnerability of infrastructures at the selected schools. Component 1 was to have been carried out simultaneous with the activities of component 2 of the project, which involved drafting and implementing the *Plan d’action national pour des écoles sûres* [National action plan for safe schools] (PANES).

Of course, the schools that were part of the project were repaired and rebuilt according to safer standards and techniques than those that existed previously; in particular, foundations, beams and wall ties were reinforced following the earthquake in January 2010.

During its visits, the mission inspected the visible portions of the structures and roofs, which generally suffer the most damage in a hurricane and which can also cause serious problems in an earthquake. Following these inspections, it was concluded that the metal structures and roofs on the rebuilt schools were not specially reinforced to withstand a hurricane. The main points of concern are:

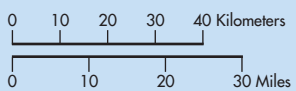
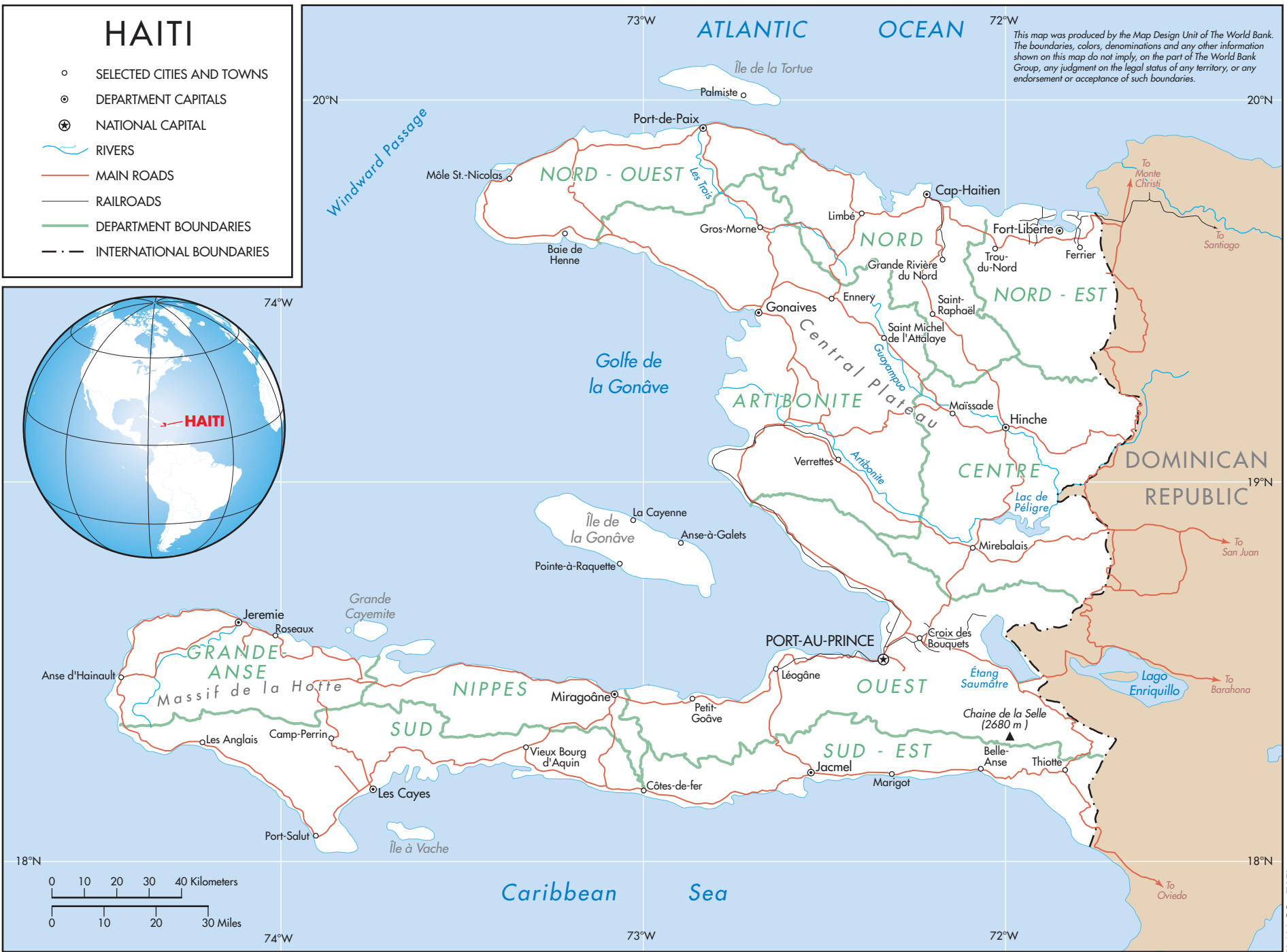
- (i) In most cases, the main structures (trusses) are fixed to the masonry with concrete reinforcements anchored to the wall ties; the strength of this assembly depends entirely on the quality of the welding of cylindrical parts (concrete reinforcements) to the flat metal beams. It probably would have been safer to use bolted or welded plates;
- (ii) The trusses are completely welded (Grand Gosier [07d]) and their design is sometimes unusual and atypical. In one case, a straining beam was added (welded) asymmetrically to the side of the truss (Brody [01c]), whereas it should have been integrated into the truss itself;
- (iii) The purlins were welded directly to the structures instead of using bolted or welded brackets or angle irons (purlin brackets). The welds are also sporadic rather than linear, and most of the purlins (comprised of rectangular tubes) are installed horizontally, whereas they would be more resistant to pressure and uplift if they were installed vertically (on edge);
- (iv) Most roof panels are poorly attached to the purlins and have not been reinforced; in most cases, the panels are attached with screws (lag screws) or hooks in the lower parts of the ribs, which is completely nonsensical and against standards. The attachments are not reinforced (washers, shims, attachments on all ribs instead of every second rib, etc.), which is a good indicator that the roof panels will tear at the attachment points;
- (v) As mentioned above, there is no drainage under the eaves or in the school yards (some of which are made entirely of concrete); moreover, the gutters are not solidly attached. Therefore, in the event of a violent and protracted hurricane, the schools would likely suffer heavy damage and flooding.

HAITI

- SELECTED CITIES AND TOWNS
- ⊙ DEPARTMENT CAPITALS
- ⊗ NATIONAL CAPITAL
-  RIVERS
-  MAIN ROADS
-  RAILROADS
-  DEPARTMENT BOUNDARIES
-  INTERNATIONAL BOUNDARIES



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